

STRY

S

18-8

pe, in

d fab-  
pecial

le for  
equip-

South

ch

R

of

?

lakes of  
barking  
ships and  
is rinsed  
wed onto

ore com-  
ure. By  
on Felti  
n to the  
mount of

OHIO

ablished  
1858

# PULP & PAPER INDUSTRY



One Of North America's  
Undeveloped Pulpwood Areas  
For post-victory expansion . . .  
North of Ketchikan, Alaska . . .  
Orchard Lake in foreground.  
Shrimp Bay & Behm Canal above.

*The Cellulose Age*

May, 1944 ~

**NORTH AMERICAN**

# REVIEW NUMBER





The great strides that the West has made in recent years is only the beginning. The path ahead is clear and a new golden era is on the horizon.

As we of Penn Salt make this forecast, we are thinking of the *two* great Wests... the West of Industry and the West of Agriculture. And Penn Salt promises full co-operation with both.

The contributions of Penn Salt Products to Western Industry are well known... and Penn Salt's contributions to Western Agriculture are rapidly assuming great importance. In the latter field is KRYOCIDE, the *natural Greenland cryolite* Insecticide. Kryocide's effectiveness in controlling many crop-destroying pests has proven a boon to Western Agriculture. And Kryocide is but one of many Penn Salt products that has its shoulder to the wheel... grinding out new prosperity, industry, independence to the West.

Penn Salt  
manufactures

### **Liquid Chlorine and Caustic Soda** for the Pulp and Paper Industry

also

Bleaching Powder • Corrosion-Proof Cements

Anhydrous and Aqua Ammonia • Acids

Perchloron\* • Sodium Chlorate

Potassium Chlorate • Sodium Arsenate

Sodium Hypochlorite • Hydrogen

\*Trade-mark Reg. U. S. Pat. Off.



**PENNSYLVANIA SALT**  
MANUFACTURING CO. OF WASHINGTON  
*Chemicals*  
**TACOMA, WASHINGTON**







M

W  
Po  
Ala  
W  
Pa  
Un  
W  
In  
Ca  
Pu  
Im  
Ne  
Ra  
Pl  
Pu  
Pa  
Es  
Fu  
Br  
19  
Pa  
Pa  
Pa

*Int*  
Ne  
Ne  
Ne  
Pro

*Un*  
Pa

To  
Pro  
Pa

Pa  
Pa  
Pa  
Pa  
Pa

Pu  
Sc  
To  
Su  
Pu

Pu  
Pu  
Ce  
Pu  
Pu  
Do  
Pu  
Ex

Pr

Pu  
Pu  
Ne  
Ra  
Ra  
Ar  
Pl  
Ti  
Pa  
Es



# In This Issue

Washington—"Inside" View	13
Postwar Plans and Prospects	18
Alaska Pulp-timber Offer	24
Wood Utilization (Equipment)	30
Paper and Paperboard	34
United States Laboratory	40
Wood Pulp	43
Industry Communities	55
Canadian Industry	56
Pulpwood	59
Imports and Exports	68
Newsprint	77
Rayon	85
Plastics	90
Pulpwood Resources	96
Payrolls	99
Essentiality	104
Future Export Markets	109
British Columbia Industry	115
1943 Diary	117
Pacific Coast Mill Capacities	121-3
Pacific Coast Personnel	124
Pacific Coast Products	132

## Statistical Tables

<b>International:</b>	
Newsprint Exports to U. S.	78
Newsprint Consumption	82
Newsprint From U. S., by Countries	82
Production and Exports of Pulp, Paper and Paperboard, 1937	113
<b>United States:</b>	
Paper Production, Imports, Exports and Consumption, 1899-1943	34
Total Paper Production, 1939-1944	35
Production Paper and Paperboard by Regions, 1942-3	35
Paper Production, Imports, Exports and Consumption, Selected Years	36
Paperboard Operation, Production Orders, 1930-1943	37
Paperboard Production—Orders, 1943	37
Paperboard Production, by Zones, 1942-1943	38
Paperboard Mill Census, 1934-1943	38
Paper, Pulp and Pulpwood Production and Consumption, 1899-1943	43
Pulp Producing Capacity, by Regions, 1943	44
Stocks of Wood Pulp, Own Production	49
Total Production of Pulp, By Grades, 1925-1943	50
Summary 1942, 1943 Pulp Production, Shipments and Stocks	50
Pulp Production, By Regions, Amounts and Percentages, 1941-3	51
Pulp Production, by Region and State, 1942-3	52
Pulp Production, Consumption, Imports, Exports, 1942-3	52
Centers of Pulp and Paper Industry	55
Pulpwood, Receipts, Consumption, Inventories, 1941-3	59
Pulpwood Consumption, by Species, 1937, 1940, 1941	60
Domestic and Foreign Pulpwood Consumed, 1860-1939	64
Pulpwood Receipts at Mills, 1941-3	64
Exports Pulpwood, Pulp, Paper, Paperboard and Converted Products, 1938-1943	66
Proportion U. S. Market for Pulp Supplied by American Mills and Foreign Mills, 1941-3	68
Pulp Exports, Quantity and Value, 1930-1943	68
Pulp Imports, Quantity, Value and by Grades, 1935-1943	71
Newsprint Sources, 1913-1943	78
Rayon Industry Cellulose Consumption, 1930-1943	85
Rayon Production, Consumption, 1930-1943	86
Annual Fiber Consumption, 1920-1943	86
Plastics Consumption, 1943	92
Timber Stands Used in Pulp and Paper	97
Payrolls—Average Earnings	99
Essentiality of Paper, Paperboard and Pulp	104

## Canada:

(For British Columbia, see Pacific Coast)

Paper Production (Selected Year)	56
Pulp Production, By Grades, 1920-1943	56
Pulp Exports, 1918-1942	57
Canadian Industry Statistics for 1942	58
Pulpwood Consumption, by Process and Province	59
Newsprint Exports to U. S.	78

## Pacific Coast (Includes British Columbia):

Pulp Production, 1923-1943	51
British Columbia Pulp, Paper and Forest Products, Estimated Value, 1938-43	58
British Columbia Pulp and Paper Production, 1919-1943	58
Pulpwood Timber Cut in British Columbia, 1942-3	64
British Columbia Log Exports, All Species, 1934-1943	64
Pulpwood Stands, by County, Washington, Oregon	96
Pulpwood Stands in Inland Empire	97
Oregon Payroll Data, 1927-1943	99
Washington Payroll Data, 1926-1943	100
California Payroll Data, 1943	102
British Columbia Industry Statistics	115
Pacific Coast Mill Capacities, 1941-4	121, 122, 123

## Graphs

Materials and equipment Used in Pulp Production; Products and By-Products	98
---	----

## International:

Newsprint Production, 1914 to 1943	77 and 80
Sulphite Pulp Exports to U. S.	72

## United States:

Paper Consumption, 1900-1943 with Trends Projected to 1950	19
Pulp, Paper and Paperboard Estimated Production, 1946	20 and 21
Wholesalers' Sales and Inventories, 1940-3	37
Paper Production, by Grades, 1942-3	39
Paperboard Production, 1929-1943	40
Container Board Production, 1929-1943	41
Boxboard Production, 1929-1943	42
Bleached Sulphite Prices, 1926-1944	42
Pulp Production, Consumption, 1904-1943	44
Pulp Statistics, All Grades, 1942	44
Pulp Statistics, All Grades and Sulphite, 1943	45
Bleached and Unbleached Sulphite Pulp Statistics, 1943	46
Sulphate Pulp and Paper Grades Bleached Sulphite Pulp, 1943	47
Bleached and Unbleached Sulphate Pulp Statistics, 1943	48
Soda and Groundwood Pulp Statistics, 1943	49
Pulp Production by Grades, 1939-1943	53
Pulp Production, Consumption, Imports and Exports; Paper Production, 1900-1943	54
Pulpwood, 1941-1942-1943	60
Pulpwood Receipts at Mills, 1942-3	62
Pulp Exports, All Grades, 1930-1943	72
Sulphite Pulp Imports, by Countries, 1928-1943	72
Pulp Imports, By Grades, 1904-1943	74
Newsprint Production, 1914-1943	77 and 80
Rayon Production, 1933-1943	86 and 88
Paper Laminates and Pulp Molds Production, 1940-3	90
Plastics Industry, Dollar Volume	90
Cellulose Plastics Production, 1940-3	92
Cellulose Plastics	94

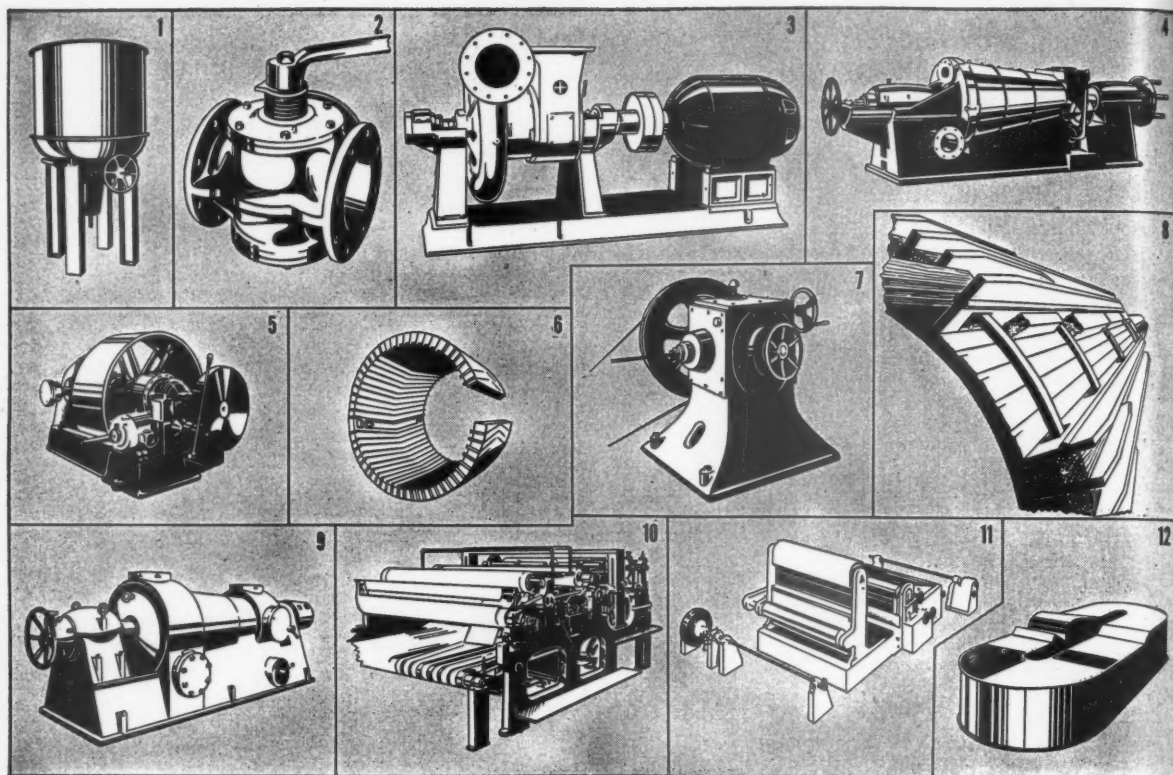
## Canada (British Columbia under Pacific Coast):

Timber Used and Wasted, 1927-1941	30
Woodpulp Exports and Newsprint Production	57
Newsprint Exports	57
Sulphite Pulp Exports to U. S.	72
Newsprint Production	77 and 80

## Pacific Coast (Includes British Columbia):

Pulpwood, 1941-3	60
British Columbia Pulpwood Exports	64
British Columbia Newsprint Production, 1929-1943	82





1. **BABY HYDRAPULPER**—For small commercial runs, experimental laboratories and molded products . . . 4 foot diameter . . . capacity to 10 tons.
2. **HOPE TYPE ROTARY VALVE**—Non-corrosive lining . . . free operation even after long shut-down. 2-way . . . 3-way . . . 4-way. Remote control. Pressure seal. Try one.
3. **D-S CENTRIFUGAL PUMP**—Versatile adaptation to mill layouts. Rigid shaft. The most for your pump dollar.
4. **MIAMI No. 2-A JORDAN**—Most modern jordan available today. Heavy shell one piece construction . . . quickly demountable. 10 other sizes to choose from.
5. **CALENDAR REVERSING DRIVE**—Ejects plugs from calendar stack instantly without danger to employees. Saves brake . . . saves time . . . saves lives.
6. **BULLDOG JORDAN FILLING**—The first pre-assembled and most widely used of all fillings. Ready to prove its worth by trial.
7. **FOURDRINIER SHAKES**—Several outstanding features not found elsewhere . . . cannot work loose and change adjustment.
8. **X-66 JORDAN PLUG**—Over a period of 8 years not a lug broken . . . have not had a complaint . . . has consistently proved its superior features. Over 300 in use.
9. **HYDRAFINER**—The culmination of long experience on stock preparation problems. Get "Messenger No. 205" for the whole story.
10. **BLACK-CLAWSON CUTTER**—Rugged, heavy duty. Duplex . . . Triplex Money-savers on board machines, due to close tolerances obtainable.
11. **MIAMI WAX MACHINE**—Brings several advantages to the wax industry that makes it a real worthwhile investment. Several on order for post-war delivery.
12. **BREAKER BEATER**—Although hard pressed by hydrapulper, it has certain fields of application. Before deciding compare the hydrapulper and breaker in view of your problem. See "Messenger No. 202."

## THE BLACK-CLAWSON CO., HAMILTON, OHIO

DIV. SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO

DIV. DILTS MACHINE WORKS, FULTON, NEW YORK





*The Management Journal  
Covering North America's  
Wood Pulp, Paper and  
Cellulose Industries*

## REVIEW NUMBER

MAY • 1944

Vol. 18

No. 5

MILLER FREEMAN  
President

LAWRENCE K. SMITH  
Manager

ALBERT WILSON  
Editor

KEMPER FREEMAN  
Production Manager

MILLER FREEMAN, JR.  
Circulation Manager

### PUBLISHING OFFICE

71 Columbia St.  
Seattle 4, Wash.  
Tel. MAin 1626

### EASTERN HEADQUARTERS

370 Lexington Ave.  
New York 17, N. Y.

### OTHER OFFICES

Chester A. Fee  
Associate Editor  
1220 S. W. Morrison St.  
Portland 5, Ore.  
Tel. AT. 9593-9594

Stuart Leete  
121 Second St.  
San Francisco 5, Calif.  
Tel. CA. 5887

Arthur Ponsford  
124 W. Fourth St.  
Los Angeles 13, Calif.  
Tel. MUtual 8196

Charles L. Shaw  
675 W. Hastings St.  
Vancouver, B. C.  
Tel. Marine 1520

### SUBSCRIPTION RATES

United States.....	\$4.00
Canada.....	\$4.50
Other Countries.....	\$5.00
Single Copies.....	\$ .35
Review Number.....	\$1.00

## WASHINGTON: An "Inside" View

### And Some Suggestions On What to Do About It

THE Paper Division of the War Production Board is in a little old squat, square building on Independence Avenue which served as a Civil War hospital and later as a "pest house." (Did some one in the back row say "it still is"?)

A light brick, red-roofed structure, it is known today as the Old Fisheries Building. It is cozy, creaky and elevator-less. In cement parking space surrounding the building is a fleet of trucks, used for the frequent moving of furniture and supplies between federal office buildings. Why the government parks all these trucks around the Paper Division headquarters seems a bit ominous.

Right next door is the Paperboard Division of WPB in Temporary "S" Building. As if to symbolize the industry, this building has fibreboard-asbestos outside walls. It is definitely a structure that was not built to endure. (Did that back row heckler say: "We should hope not"?)

But, seriously, these two WPB divisions are in much better grace today in the industry which they serve than their predecessors were early in the war. Since then the "outsiders" and "theorists" have been weeded out. In the early organization were a few men who had no experience in the pulp and paper industry. There were promoters, making war jobs for themselves. They had the fantastic idea that the nation could fight a war with paper production slashed in half. Mills were ordered shut down and other operations were reduced, seriously crippling the industry. They got the WPB into unforeseen difficulties in an experiment allocating logs and by barring Pacific Coast paper pulp shipments. Much of the industry, with manpower hopelessly scattered, is now unable to meet the urgent war demands as a result of those experiments.

### Some of Industry's Best Men Now In Washington

● The industry itself has been blamed by some critics for the situation in early days of the war because of an alleged reluctance to release experienced men to take Washington jobs. On the other hand, there was also a prejudice in official Washington circles against trusting pulp and paper men with direction of their own industry. It was believed they would have a selfish interest and would be more interested in their company's welfare than the war requirements. Regardless of where blame rests—and, like most other things, it probably is divided—the important fact is that today the pulp and paper industry has a score or more of its best men serving in Washington.

After spending several days with these men, a PACIFIC PULP & PAPER INDUSTRY representative came away with the very definite impression that unselfishness and patriotism were the prime motivating forces in their activities. There seemed to be the kind of spirit among these men that you find among their sons when they make the school football team. At any rate they are trying—and a lot of them are working all kinds of hours and with complete disregard of health in the tense and endless excitement that pervades Washington.

The unhappy part of it is that in many cases dollar-a-year men from the various industries find themselves frustrated and check-mated by inexperienced officials. And men with real talent and experience are forced to wade through endless papers and reports on subjects with which they may not be qualified to make decisions. They often cannot contact or write men in other agencies on important matters unless they hold a title of equal rank.

Perhaps, in a three months or six months tenure in Washington—which is as long as some of them can physically stand the pace—an important industrial or business executive may make a few decisions of real value and service to his country. If these few decisions are tremendously vital in winning the war, it may be argued that all the needless running around they do is worth it. But this is a general Washington criticism, which is

The article, "Acid Making In the Sulphite Pulp Industry," by A. H. Lundberg, which has been running serially in PACIFIC PULP & PAPER INDUSTRY since January, 1943, will be resumed next month. The June issue will carry the first installment of Chapter III.







chief of the Pulp & Paper Branch in April, 1942. Concern over the possibilities of shortages was not yet felt. Mr. Winton, as in the case of Mr. McKenna, was an "outsider" with no direct experience in the industry.

4. Arthur G. Wakeman, who had left his position as production manager of Fox River Paper Co., in early 1942 to serve in Washington (he is now coordinator of expansion for Kimberly-Clark Corp.), became the chief of the Pulp & Paper Branch in October, 1942—unfortunately, just when views of WPB officials who held pulp and paper in low regard were prevailing. In the fall of that year Puget Sound mills were forced to close, others were put on restricted operation schedules and paper pulp shipments eastward were prohibited. It was a smaller and more ineffective industry unit—far from being commensurate with its true importance—that Mr. Wakeman headed. The lumber industry had an inside track on raw materials and there was a real need for an over-all authority and also for closer cooperation between all the major agencies—WPB, OPA, War Manpower Commission, Selective Service, etc.

5. In August, 1943, the old Pulp and Paper unit was scrapped. A stronger Forest Products Bureau was created to coordinate and control all industries using cellulose. The consensus in the industry seems to be that the WPB was most fortunate in finding such men as Mr. Boeschstein to head the new bureau, Rex W. Hovey to direct the Paper Division and Jack Otto to head the Paperboard Division. Mr. Boeschstein and Mr. Otto are from Illinois and Mr. Hovey from New York and, formerly, Canada.

Mr. Boeschstein, on leave as president of Owens Corning Fiberglas Corp., had only had a few indirect contacts with the pulp and paper and lumber industries prior to his appointment. He had a hand in straightening out the steel production tangle early in the war. As head of the new Forest Products Bureau, he again demonstrated his ability as an organizer.

Mr. Hovey brought business common sense to his job. He is an energetic, two-fisted hard worker, with a rounded experience in all phases of pulp and paper production and marketing. As vice president of Oxford Paper Company, New York, he had been in charge of the company's mill operations.

## KNOW YOUR WASHINGTON

*The pulp and paper industry is becoming progressively more and more under control of Washington officialdom. Washington agencies tell the industry what to make, how much of it to make, where to sell it and how much to sell it for.*

*The prospects are—no matter what happens in November—that some forms of control will continue after the war. Otherwise, deflation, the squeezing out of small industries would threaten.*

*This article aims to give the industry an "inside view" of Washington and how it works, particularly in reference to the pulp and paper industry.*

HERE ARE THREE OF THE BUILDINGS in Washington, D. C., housing the War Production Board offices which have control over the pulp and paper industry. They are all below Capitol Hill and in easy walking distance of each other.

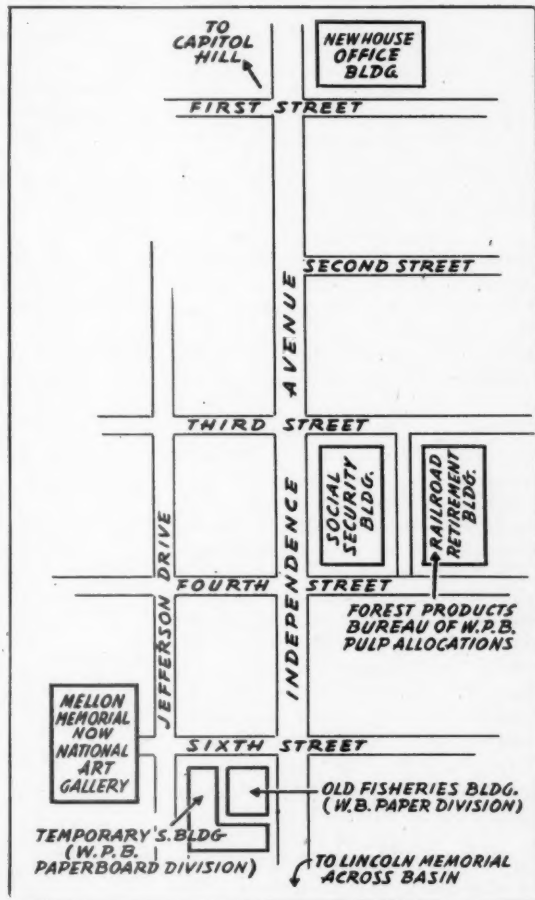
In the Railroad Retirement Building is headquarters of the Forest Products Bureau, the agency formed last year to coordinate and direct paper, paperboard, lumber, containers and printing and publishing divisions. The Pulp Allocations office is also in this building.

In the Old Fisheries Building is the Paper Division and next door in the Temporary "S" Building is the Paperboard Division.

Born a Canadian, he served as a young man in technical work in the Pulp & Paper Institute in Montreal.

Both of these men have been keenly aware of the importance of getting out more pulpwood. They have worked tirelessly at this task—often dropping other matters at a moment's notice to seize an opportunity for developing new sources of wood and pulp. More production is their goal—a far cry from the goal that was sought by some of the "outsiders" who held powerful positions in the earlier days.

To the Paperboard Division, Mr. Otto brought his rich experience and personality as president of the Alton Boxboard Company.



Another achievement of the new organization has been to place all pertinent information on operating conditions and supplies before all members of the industry. Operators are now—for the first time—as well informed as Washington officials on the various problems.

### Frequent Staff "Huddles"

● Every week there are staff meetings of the Forest Products Bureau and also the Paper and Paperboard Divisions. It was observed in visiting the Paper Division that these weekly meetings are not the only get-togethers. Mr. Hovey calls his aids together on almost any problem that comes up. Meetings seemed to take place on the slightest provoca-



tion—any time, almost anywhere in the offices.

Making decisions collectively in this way takes the onus off any individuals. An individual cannot be blamed for a decision, even though in the privacy of the meeting his views may have prevailed. No one is put on the spot.

There are five major branches headed by deputy directors under Mr. Hovey and his assistant director, Henry G. Boon, former general superintendent of Kimberly-Clark Corp. of Neenah, Wis. These branches are pulpwood production (James M. Madden, Hollingsworth & Whitney Co.); pulp production (Lyman Beeman, St. Regis Paper Co.); coarse papers (H. O. Nichols, Crown Zellerbach Corp.), fine papers (William H. Kenety, Fitchburg Paper Co.) and converted paper products (Roth F. Herrlinger, Gunned Products Co.). Each branch is divided in sections headed by "chiefs"—newsprint, kraft, tissue, etc.

There had been a criticism that after these men made a decision concerning operations in their branch, any appeals, more often than otherwise, would be decided by someone with no such special knowledge. Appeals committees were made up from the same group of deputy directors but might not include the one from the branch involved. It is argued by some critics that an industry committee should consider appeals rather than sending them back to the Paper Division.

Also sitting in on some meetings are members of the joint bureau staff. One is Allan Hyer, on leave as sales manager of Black-Clawson Co., who is in charge of distribution of machinery and equipment. Another is James S. Jenkins, who formerly worked in the Port Angeles, Wash., mills, who is special assistant to Mr. Hovey for labor matters. Franklin Hufford, from Castanea Paper Co., holds a similar position in transportation matters.

Obviously, Mr. Hyer's position is one of great importance, requiring tact and judgment. His long tenure in Washington is evidence of how well he has done the job. The importance of end products of mills has now become the chief determining factor as to who gets new machinery and equipment. Certain other controlling factors are set up. Machinery to save wood or increase pulp yield will usually be okayed. Here again, the toughest decisions will be made by Mr. Hyer in conference with his associates. But final

decisions on big issues of curtailment or new construction may go to Mr. Boeschstein or be brought directly to his attention by mill executives.

The old War Products Development Committee has now been disbanded—no longer is the WPB trying to find uses for paper as substitutes for other critical materials. Today, the WPB has reversed this—it is trying to find other materials to substitute for paper. Today, the technical staff under Mr. Hovey is charged with making mill and supply program studies. The big job is to make the small supply of fiber go around. The Paperboard Division also has a new technical staff, charged with studies aiming to save paperboard.

In Temporary S Building, Mr. Otto has R. W. Whitney as his Deputy Director and Willard L. Davis as Assistant Director in Charge of Containers and Containerboard. This Paperboard Division has its sections—fiberbox, containerboard, etc.

#### Pulp Allocations

● The Pulp Allocations Office, as previously explained is in the Railroad Retirement building, directly under Mr. Boeschstein and independent of the Paper and Paperboard Divisions.

The men on the industry pulp allocations committee have been highly praised for an outstanding job. They comprise one of the hardest-working and most objective of all the advisory committees. Members are:

Paul R. Bachman, Riegel Paper



**HAROLD BOESCHSTEIN**, Director of Forest Products Bureau, WPB, Washington.

Corp., Maxwell Bardeen, Lee Paper Co., A. W. Berggren, Rayonier Incorporated, R. M. Buckley, Soundview Pulp Co., D. G. Driscoll, Sorg Paper Co., George E. Dyke, Robert Gair Co., R. G. Fairburn, Berst Forster-Dixfield Co., Roy K. Ferguson, St. Regis Paper Co., E. E. Grant, Crystal Tissue Co., Amor Hollingsworth, Penobscot Chemical Fibre Co., A. C. Jones, E. I. du Pont de Nemours & Co., S. E. Kay, International Paper Co., N. L. Nourse, Brown Co., W. Irving Osborne, Jr., Cornell Wood Products, Oliver M. Porter, U. S. Pulp Producers Assn., John Stevens, Marathon Paper Mills, Dwight Stocker, Michigan Paper Co., L. W. Strattnr, West Virginia Pulp & Paper Co., Geo. R. Wallace, Fitchburg Paper Co., and F. S. Wakeman, Ohio Box Board Co.

Former members included Ralph A. Hayward, Kalamazoo Vegetable Parchment Co., Rex W. Hovey, Oxford Paper Co., J. L. Madden, Oxford Paper Co., H. O. Nichols, Crown Zellerbach Corp., F. W. Brainerd, Scott Paper Co., C. H. Conrad, Rayonier Incorporated, D. Crocker, Crocker, Burbank Co., G. B. Gibson, Union Bag Co., H. H. Hapson, Hamilton Co., L. K. Larson, Weyerhaeuser Timber Co., and D. L. Stocker, Michigan Paper Co.

The purpose of allocations is to make sure that enough pulp and the right kind is available when and where it was needed for essential war purposes.

#### David Graham Makes Good

● It truly was a remarkable feat to create this system and to analyze and systematize all the maze of information regarding pulp uses and supplies. The presiding genius in this work from the very beginning has been David Graham, who now has the title of Chief of the Office of Pulp Allocation. Mr. Graham is one of the few persons who has stuck it out right from the beginning in the pulp and paper industry units. He is the only person from outside the industry who has remained through all the shakeups.

Born a Britisher, he came to this country as a young man before the war and was with an advertising firm. As some of his colleagues have commented, Mr. Graham is a whizz with figures. He is a patient and persistent man, too. Perhaps these personal qualities account for his long tenure in Washington.

Serving in an ex-officio capacity as his advisor is Kiev Larson, New York representative of Weyerhaeuser Timber Co., formerly on the allocations committee but now



spending five or six days a week in Washington. Mr. Larson is recognized as a man who knows pulp. He has been of inestimable assistance to Mr. Graham. Neither of these men can be held responsible for the effects of allocations. Their job is practically automatic, following directives of the controlling committees.

Where judgment enters into the matter today is in the essentiality of end products—but this is the judgment of the controlling committees. Adjustments can only be made after consulting with Messrs. Boeschstein, Hovey or Otto.

### The OPA's Paper Unit

● The Paper and Paper Products Price Branch, Office of Price Administration, is in Federal Office Building No. 1. After calling on the Pulp and Paper Unit of the Department of Commerce (an organization that is pretty much sidetracked these days by the wartime agencies), a representative of PACIFIC PULP & PAPER INDUSTRY inquired at the information desk for directions to F. O. Building No. 1.

The policeman in charge—apparently one of the old school—said: "Why, these are all federal buildings here—you'll have to be more specific." He ignored the fact that Building No. 1 had been specified—and the upshot was that he took the visitor up three floors and through endless corridors to a sort of information headquarters. Here a young woman immediately identified Federal Office Building No. 1 as the old Census Building.

"Why didn't you say that in the first place?" roared the cop. He just refused to keep up with the modern Washington terminology—only old names and places meant anything to him. And no doubt critics of the new ways will say "more power" to him.

And so F. O. Building No. 1 was reached and here quite a different pulp and paper industry set-up was found. Economists and legal experts hold sway in this unit, with only a few men who actually came from the industry. Up to date, there has been considerably more permanency in these positions than in the WPB.

J. R. Atwater, as Price Executive, is the top man in the Paper and Paper Products Price Branch. He has under him a chief counsel, Lawrence Channing, and the heads of three Sections—Paper Products, Addison T. Cutler; Fine Papers and Printing, Philip Bachelder, and Raw



**TWO OF THE TOP MEN IN THE PAPER DIVISION** of the War Production Board, as reorganized in late 1943 and carried on in 1944 are:

**JAMES L. MADDEN** (left), 34-year-old Deputy Director of the Division, in charge of Pulpwood Production. He is from Boston—on leave as Vice President of Hollingsworth & Whitney Co.

**REX W. HOVEY** (right), Director of the Division. On leave as Vice President in Charge of Manufacturing of Oxford Paper Co., New York. Had wide experience in all branches of the industry in both U. S. and Canada.

Between Messrs. Madden and Hovey is K. P. Goehagan, Technical Director of Aetna and Maxwell Paper Companies in Ohio, who, as a TAPPI Executive Committeeman, sat with them at the TAPPI luncheon in New York this year.

Materials, William H. Swalwell.

Mr. Swalwell, whose division controls market prices of pulp, pulpwood and waste materials, is the son of a Seattle banker and some years before the war was with Rayonier Incorporated. A young man serving as the pulp unit head is Simon Posen, who studied at the Institute of Paper Chemistry at Appleton, Wis.

On the whole industry executives feel this unit of the OPA has done a good job in stabilizing industry conditions. Pacific Coast pulp producers are gratified that the old system of an Atlantic seaboard delivery price (favorable to pre-war Swedish pulp) has been abandoned. The OPA scale, f.o.b. converting mill or delivery point, is much fairer because many big users are in the mid-west.

### FEA Reactions

● The Foreign Economic Administration—successor of the Board of Economic Warfare—headed by Leo T. Crowley, is one of the wartime agencies with which pulp and paper producers are becoming more involved. William Jenkins of the Forest Products Bureau is empowered to make foreign allocations of pulp—but, in actual effect, he cannot push around the decisions of the Paper Requirements Committee.

The committee accepts, modifies or rejects requests from the FEA for a forward period of six months or a year. A ceiling quota is set up.

This magazine was told by the

WPB officials that voluntary acceptance of government orders will be a happier arrangement than otherwise. If the army and navy doesn't get its orders accepted, it will mean directives to the industry.

### Washington Suggestions

● Here are some suggestions to pulp and paper industries which, the Washington survey by this magazine indicates, would be helpful:

1. Company managements that can do so should have a competent contact man in Washington. Their personalities, of course, are important. If he gives the impression to the WPB divisions and others that he is trying to be helpful and is not there to grab all he can, he will undoubtedly do his company much good.

2. These Washington "envoys" do not need to give cocktail parties or engage elaborate hotel suites. The truth is the hard-working industry men in Washington dread getting snared into any such affairs. It is necessary now to make appointments—in the old days, a company representative found it easy to walk in most any office.

3. Applications for equipment by companies should be carefully filled out. Be sure you list all the equipment you will need—don't ask for a coat and vest and overlook the pants. Care in filling out all types of applications—although they are an almost impossible chore these days—is a wise policy.

4. The trend of affairs in Washington indicates very strongly that the manufacturers should do everything they can to get into production that is regarded as essential. The essentiality of end products is becoming progressively more important. The word passed around in Washington—for whatever it is worth—is to get out of the confetti and paper hat business.

5. The services offered to the industry by American Paper and Pulp Association should be utilized. The APPA holds forth in the Raleigh Hotel, Rooms 314-5). Incidentally, several of the industry's WPB \$1 a year men are quartered in the Raleigh and often may be seen there. Ted Tinker, executive secretary of the APPA, spends much of his time in Washington. Fred Morrell who has had long experience in the capital, in charge of the APPA quarters. The APPA actively follows up applications of member mills pending in official bureaus and will endeavor to secure prompt satisfactory action. The APPA provides a meeting place and information center for the industry.



## POSTWAR PLANS & PROSPECTS: A Preview Of the North American Industry's Future

Seven new kraft mills in northern United States and Canada are planned / / / Plastics and other by-products will be increased / / / Construction plans for pulp and paper, newsprint and containers plants in South exceed all other industrial programs / / / New sulphite and groundwood bleaching processes will be widely applied / / / Improvements in kraft and developments of resin and coatings are outstanding developments / / / More paper will be made on the Pacific Coast.

**P**OSTWAR is becoming a hackneyed word—used so often and so casually these days that its tremendous significance is lost on us. Maybe post-victory would be a better phrase to wake us up to the fact it embraces everything our boys are fighting for. But that word, too, probably would lose its potency in time.

Anyway—without committing any more crimes on these words ourselves—let's settle right down to the subject of the postwar prospects and plans of the North American pulp and paper industry. That is the liveliest topic in the industry today in both secret and open and formal and informal meetings. This article and others in this issue present a preview of these prospects and plans.

One of the most important figures in the industry today (some rate him as one of two or three best informed individuals) predicts there will be a 20 per cent increase in pulp and paper production after the war—mostly in paperboard. This is anticipating an almost unbelievable upward surge and needless to say there are many who will disagree. (For the past three years paper and paperboard in United States and Canada has hovered around an all-time record of 21,000,000 tons despite the war—or, it may be said, in order to better fight the war).

But having gone through one period of over-expansion, with resulting serious after-effects, the pulp and paper industry of North America needs no warning against painting prospects too brightly.

### New Canadian Kraft Mills

● At least five new kraft pulp mills in Canada are projected for after the war. There is possibility of at least two rising in northern United States in areas of comparatively good stands of timber. More plastics plants in conjunction with pulp mills are projected. Big things are brewing in the south. There are definite plans to make considerably more paper in the Pacific Northwest from the pulps already being produced there. New sulphite mills are

most unlikely prospects.

It has been wisely observed that pulp and paper production keeps pace with the literacy of nations and, more especially, with the tempo of business and commercial activity. This activity is presently the greatest in world history. It may drop off in "war industry" areas but what will be the overall picture for the world as a whole—the "One World" we have heard so much about? If all the world rose to U. S. standards (the U. S. rate of consumption), it would use five times as much paper as it is using today! And that is definitely what we are shooting for if we are serious about making future wars impossible—or at least more unlikely.

The pulp and paper industry is one industry that faces no peace time problem of reconversion and re-tooling. Replacement of machinery will be necessary and a great deal of new machinery—faster paper machines, new machines for continuous flow production and new beating equipment—are assured. In common with almost all branches of activity there has been a pronounced expansion in paper production and production of other products of wood pulp since the invasion of Poland. But war alone is not responsible for this. It is very probable this expansion would have gone forward if there had been no war.

A prominent paperboard executive points out that expansion of manufacturing facilities in that industry always has lagged behind demand and he sees no danger that the industry will get itself out on a limb. Today there is an enormous backlog of consumer sales of paper and paperboard, both retail and industrial, jammed up by the war.

For many years, the United States, while being the world's largest manufacturer of pulp and paper, has had an insignificant foreign trade in these items, amounting to only two or three per cent of output. It is estimated that it will take at least a year after the war to get pulpwood cutting back to normal levels. Domestic demand for products may

delay exports. But the American soldier is a worldwide "salesman" now for American pulp and paper products and eventually important exports may be expected. Incidentally, the American soldier is now accustomed to receiving nearly everything he gets wrapped in paper. The much-heralded development of the Orient as a market is drawing attention to the Pacific and the prospect for greater paper production, as well as pulp, on the west coast of United States and Canada.

There is considerable diversity of opinion in regard to the possibility of competition with imported pulps in the first two or three years after that there will be plenty of markets for all. There probably will be a big increase of pulp production capacity in Russia. The only large spruce wood growing area is in northern Russia, which is said to have 60 per cent of the world's supply of spruce pulpwood. It seems reasonable to expect that some new mills will be built in this area for world pulp requirements.

The problems of wood supply and how to make greater use of wood are two of the most serious facing the industry. Wood utilization is dealt with in another article in this issue. The availability of new pulp timber in Alaska is discussed in an article following this one.

### Eyes On Southland

● Postwar activity in the south has many leaders in the industry on the alert. Southern newspaper publishers are determined to have more newsprint mills of their own as soon as possible. A survey shows that the three industries planning the greatest amount of construction are (1) pulp and paper, (2) newsprint and (3) paper containers—really three branches of one industry but each one with bigger plans than chemicals, textiles, food processing, glass and plastics.

Some remarkably fast machines—their speeds a guarded secret—already operate in the south. A four-drainer tag stock is being made in Louisiana, something that it was



thought never could be done. Tall products are rumored in development in the uses of southern pine oil for soap industries is being produced and other seemingly fantastic pulp effluent.

### Bleaching

● More bleach plants are going to be built in both United States and Canada. In the Pacific coast area, three are planned.

Successful experiments have been conducted with the use of magnesium salts as a bleaching agent for sulphite pulp and with sodium peroxide for the bleaching of groundwood. This latter process was developed by the du Pont electrochemicals department, Nigara Falls, N. Y., and already has been put into effect in eastern mills. Several other mills have indicated their intentions of installing the process.

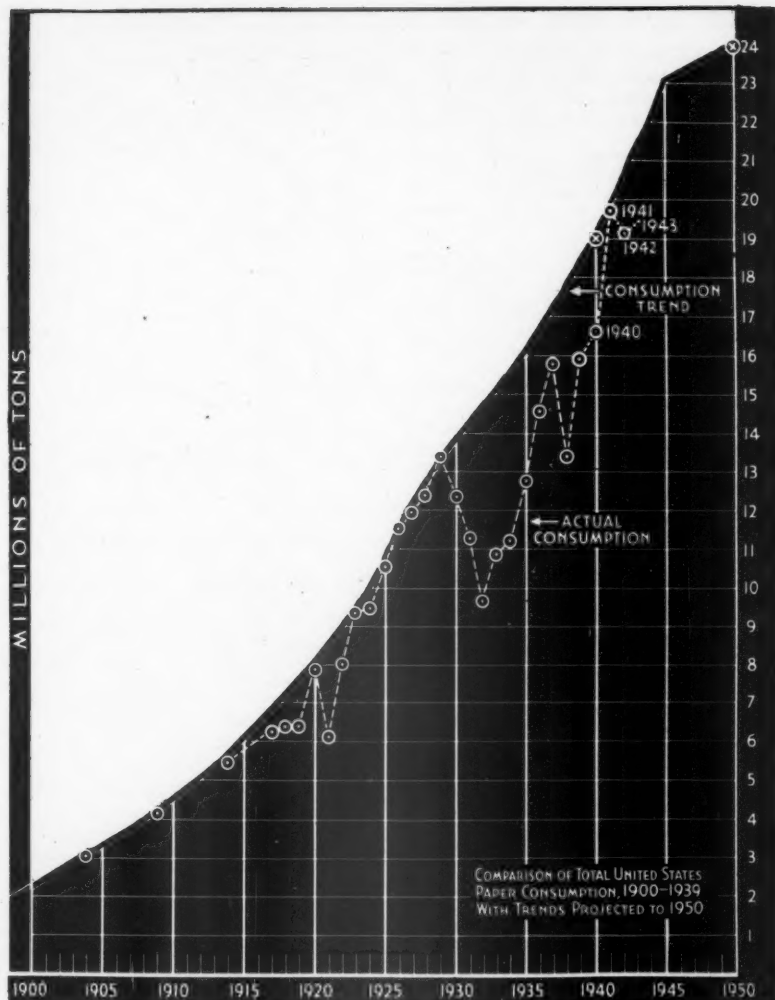
Bleaching of kraft has made possible many new uses for that type of pulp. It is now possible to produce a dissolving sulphate pulp, also. All of these developments will be put into practical application on a large scale after the war. They will contribute to more diversity in paper products, more uses of paper.

### Resins and Coatings

● One of the important developments has been increased use of resins and coatings. The coatings will be put on in the paper machines themselves, instead of with brushes, as in the past. Remarkable high wet and dry strengths for papers have been achieved with resins. One of the first supply companies to realize the possibilities in this field is American Cyanamid & Chemical Corp. Its detailed description of a new melamine resin suitable for adding to paper pulp in the beater was published for the first time in PACIFIC PULP & PAPER INDUSTRY in the April, 1943, issue.

Urea-formaldehyde and melamine-formaldehyde types of resins have found the greatest usefulness in the paper industry. Resins have found applications in such diverse papers as toweling, blue print, tag stock, bag and wrapping, tissue, etc. The much-publicized V-boxes probably are much too costly to be an enduring postwar product. But thanks to resins, the future will see many substantially improved papers.

More pulp will go into rayon and plastics, if the trends, uninfluenced by war, continue. It is generally expected they will. Resin-treated pulps have made possible a more durable product than the hardest of woods and this means faster growing and lesser grades of wood will have



**TREND OF PAPER CONSUMPTION** is toward a United States paper consumption of 24,000,000 tons in 1950, according to predictions made eight years ago. This graph is drawn to an arithmetical vertical scale from a ration scale graph prepared in April, 1938, by Charles W. Boyce, then Secretary of the American Paper & Pulp Association. War stimulated consumption brought the 1941 figure up to Mr. Boyce's trend curve. His predicted pace was not maintained, however, in 1942 or 1943.

wider future use. Plywood production today depends on increasingly scarce high grade and large peeler logs and some chemists predict a future and improved "plywood" will be a wood pulp base plastic.

There is a trend toward getting away from the use of beaters which have difficulty in keeping up with the faster machines. There will be more refining, color-ganging and rod-milling, of pulp, some experts say, in order that it can be refined more quickly in paper mills. Morden Stock-makers for continuous flow stock preparation, developed by C. W. Morden, Pacific Bldg., Portland, Ore., are in use by the Rhinelander Paper Co., serving what is described as the largest glassine paper ma-

chine and doing away with beaters or jordans. In other mills they are used ahead of beaters or between beaters and jordans. The most important equipment changes in paper mills after the war probably will be in beating equipment.

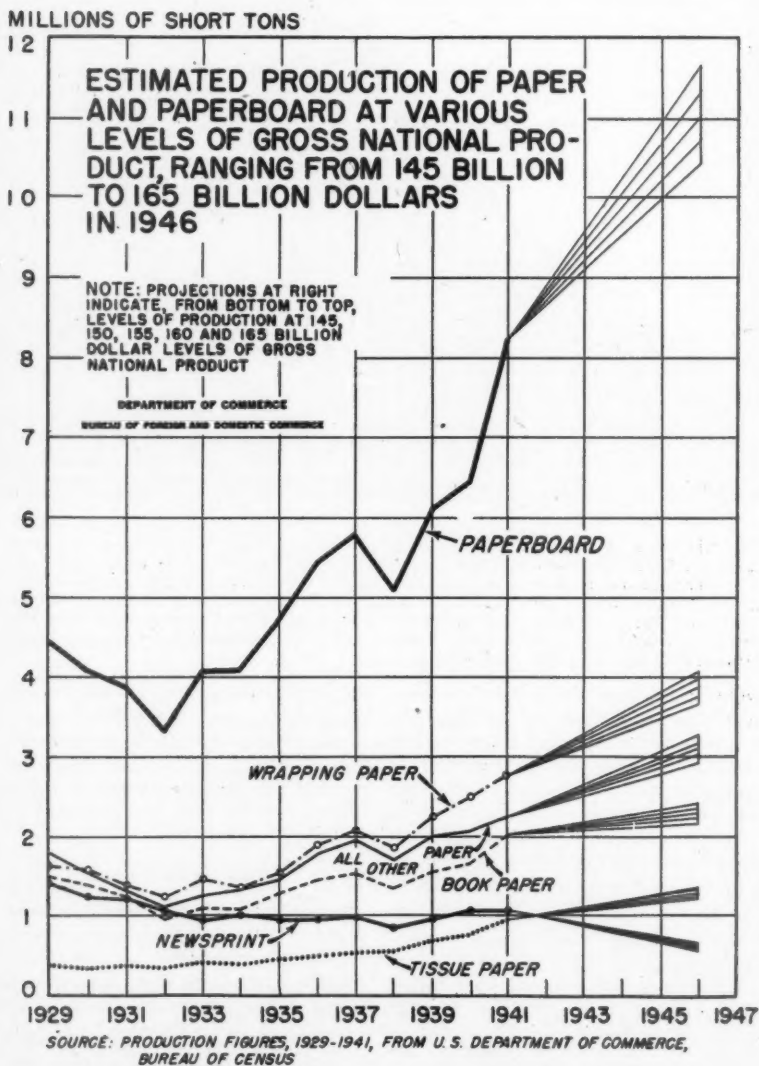
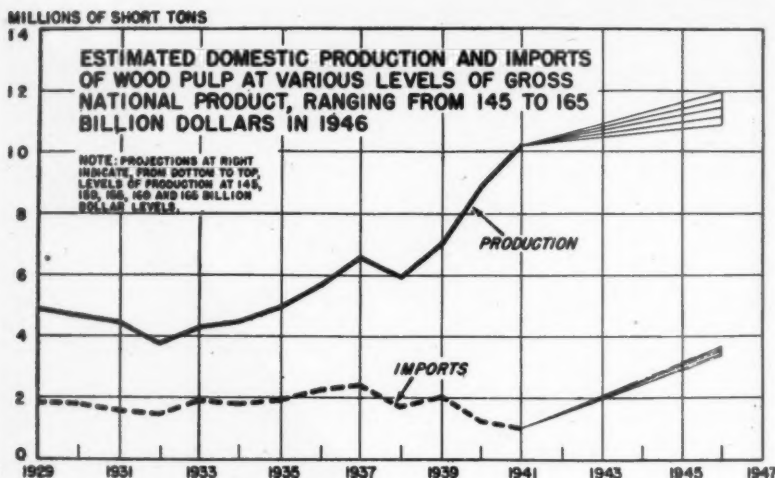
### Authorities Speak

Here are some predictions and comments on postwar by men who speak with authority:

J. D. Zellerbach, president, Crown Zellerbach Corp.:

"Our postwar planning committee is searching for and studying new grades, new qualities and new types of paper to fit into new markets. We are also searching for new and reliable outlets for our products in





SOURCE: PRODUCTION FIGURES, 1929-1941, FROM U. S. DEPARTMENT OF COMMERCE, BUREAU OF CENSUS

**EXPLANATION OF CHARTS:** The U. S. Department of Commerce describes above charts as hypothetical projections based on mechanical operations—not forecasts. Empirical observation leads to belief that industry's output would tend to follow generally fluctuations in total business activity. This should be especially true of pulp and paper. A series on gross national product, devised by the National Income Unit of the Department of Commerce, was selected to reflect total activity. Gross national product is a term designed to count all final products and services produced by the economy at the prices these products command in the market.

grades that are less competitive. We are planning for a timber supply for an indefinite period ahead."

Norman W. Wilson, president, Hammermill Paper Co.:

"A realistic approach to product development will be more essential in planning a postwar business than ever before. . . . When wartime restrictions are released, new scientific and technological developments will appear in peacetime products faster than ever before. No company can expect to be the same after the war as it was before. . . . One company which conducted research on waste products found it could develop a line of plastic by-products which now promises to be a more profitable source of income than its paper. Management cannot afford to overlook the potentialities of research."

D. Clark Everest, president, Marathon Paper Mills:

"First and most important of all problems confronting us will be re-employment of those in the armed services. . . . There will come a time when there will be opportunity to get release of critical materials. . . . our engineering departments should have plans ready. . . . Maintain relationships with pulp producers and waste paper dealers on the North American continent. The fear of an avalanche of woodpulp descending on this country from Europe after the war or for years to come is pure bunk. . . . Russia points to becoming one of the greatest commercial nations on earth and if that is true, Russia will be an importing, rather than exporting, nation of pulp and paper for many years."

Thomas B. McCabe, president, Scott Paper Co.:

"Our long range plans contemplate a greatly expanded business, complete renovation and probable extension of present plants and possible acquisition of new facilities."

R. A. Hayward, president, Kalamazoo Vegetable Parchment Co.:

"Demobilization will be slow and most men will find jobs in an industry rather than in the woods. It is going to take about two years after the war to completely build back inventories of pulp and paper. Starting a year or two after the war, consumption of paper products should be high throughout the world. The pulp industry should enjoy a full market for several years. It is generally within this framework of thinking that we are projecting the building of our kraft mill in Canada."



Vance P. Edwardes, Sulphite Superintendent, International Paper Co., Palmer, N. Y., and National President, TAPPI:

"Probably the first thing to happen after the war will be importation of stored chemical pulps, particularly bleached sulphite, from Sweden at a price I feel, below the present market. I don't think this will be too upsetting in the long run but will cause a flurry for six or eight months. Foreign importation of pulps will probably not reach pre-war tonnages because of devastation of forests, over cutting, destruction of mills, labor shortages and the European demand. This situation I feel will last for about three years.

"In the United States and Canada, probably the first restriction to be removed will be that controlling the brightness of chlorine bleached pulp and papers so we may expect higher colors than pre-war due to new methods developed during the war but held in abeyance. . . . The use of waste paper on a larger scale than pre-war is most likely to continue since more manufacturers have learned how to utilize it to advantage in the production of the better grades of paper. In other words, a source of paper making fiber having desirable characteristics has been developed. . . . There is now a limited tonnage of bleached groundwood being produced which has definite advantages over free sheets for printing papers. This development will probably be rapid when restrictions on the chemicals involved are lifted. . . . Looking further ahead—the production of bleached chemical and dissolving pulps will increase rapidly with bleached kraft replacing bleached sulphite to a large extent. In fact, I personally doubt if many more sulphite mills will be built unless means already proposed for the recovery of cooking chemicals can lower costs enough to permit competition with bleached Kraft from low cost wood areas."

Lawson Turcotte, vice president, Puget Sound Pulp & Timber Co.:

"A strong and continuous demand for pulps of all grades should be a fact for some considerable time. . . . The present war years probably will be known as the 'Cellulose Age.' . . . Our country has made outstanding technical and actual manufacturing advances in the uses of pulp itself, pulp wastes and wood. . . . Postwar operation of our alcohol plant will depend upon demand and competitive position. . . . I hope further research will enable operation

competitively and that postwar developments in the Pacific Northwest will include plants that use large quantities of industrial alcohol. It may also be used for motor fuel, depending upon cost and size of the nation's oil reserve."

Dwight L. Stocker, president, Michigan Paper Co., and new president of the U. S. Pulp Consumers Association:

"We have a definite program lined up. But we feel our first obligation is to provide work for our men returning from the service and we hope to do this, using them in our manufacturing operation and in improvements."

E. Howard Smith, president, Howard Smith Paper Mills, Ltd., of Canada:

"It requires no great stretch of the imagination to picture a world in which cellulose will play a much more important part than it does today. One acre of forest land will produce more cellulose per annum than a similar area planted with any other known crop. In Canada, a thriving industry should develop from further processing of cellulose derived from woodpulp. . . . Consumption of paper and paper products today is greater than that of any other commodity. Yet this consumption has not in any way reached or nearly reached saturation point. . . . a backlog of new construction in pulp and paper mills will amount to many millions of dollars."

A. E. Cadman, secretary-manager, Canadian Pulp & Paper Assn.:

"The Canadian industry has established a committee dealing with postwar reconstruction matters. A survey is being conducted of postwar projects, so that it may be translated into possible jobs in the five immediate postwar years to avoid,

## HOW WE ARE SAVING PAPER

● Our old friends will observe that this North American Review Number of Pacific PULP AND PAPER INDUSTRY is different in many respects to the annual issues of past years. Aside from some editorial innovations —

We are saving paper in two ways. We are using lighter weight paper. Our trim page size is smaller. There is less white or wasted space. In reducing trim size, we made the saving in the margin. There is just as much information on each page—in fact, more information, as there is now less white space around the heads, etc.

We find printing tends to show through light stock paper. That's just too bad—but a war is on. When it is over we will again resume the highest possible standards and quality of publication.

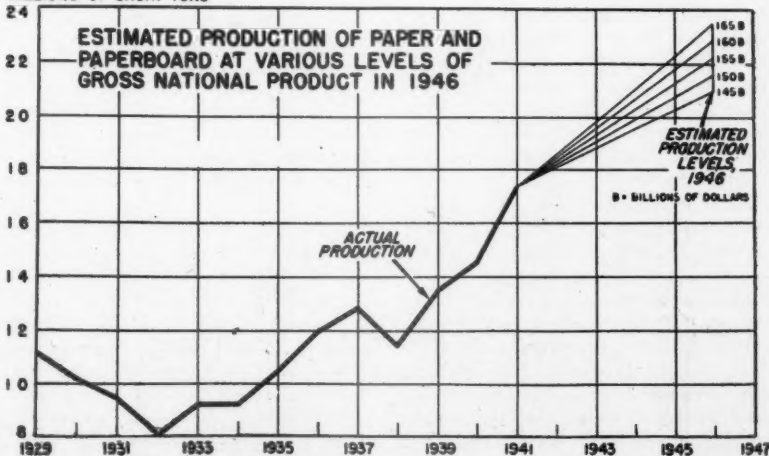
insofar as is possible, a letdown in the employment situation."

### Weyerhaeuser Co. Plans

Two years of imperative war demands have brought great changes in the economic structure of the Pacific Coast. More than one billion dollars in federal funds alone have been poured into Pacific Coast industrial facilities. Over 1,000,000 new employees came west. A vastly increased printing industry has developed. Eastern magazines are or will be printing their western circulation on the coast. All of this will have its impact on the woods and the pulp and paper industries in that region after the war.

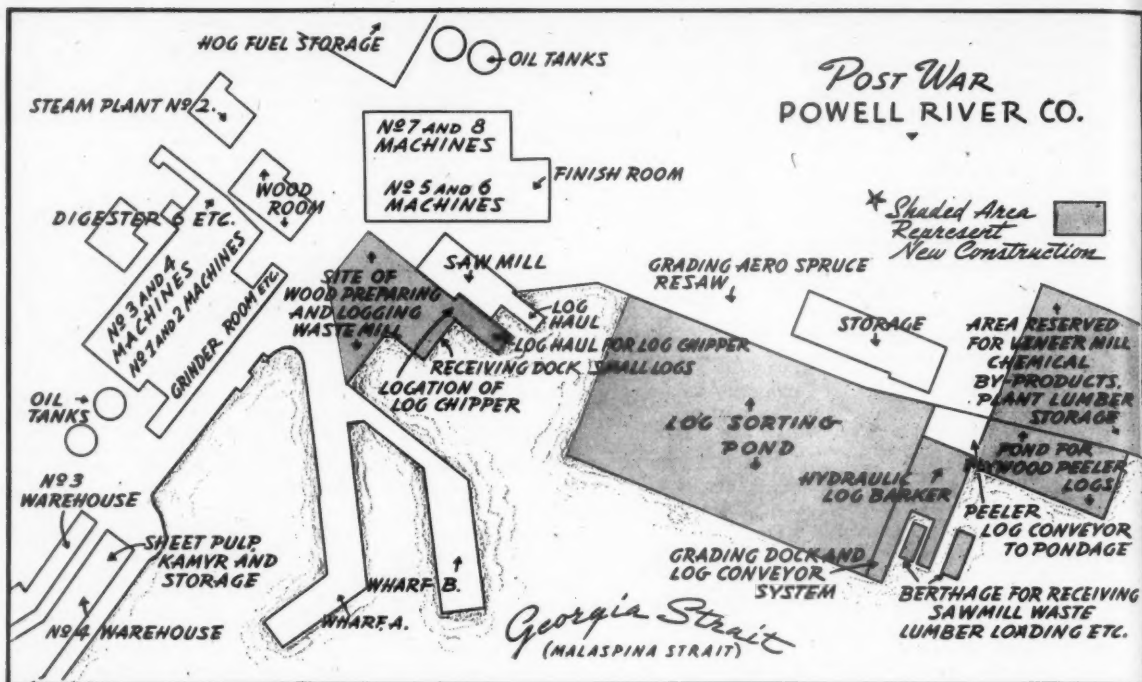
Holding all the potentialities of providing new impetus and important economic advantages for a growing molding industry of the West Coast is an announcement by the Weyerhaeuser Timber Co. that it has developed an entirely new type of molding powder and that it

MILLIONS OF SHORT TONS



SOURCE: PRODUCTION FIGURES, 1929-1941, FROM U. S. DEPARTMENT OF COMMERCE, BUREAU OF CENSUS





will begin commercial manufacture shortly.

The new material is another product of the company's Development Department which was established at Longview, Washington, in its new and specially designed laboratory less than two years ago for the promotion of privately financed research, development and product improvement. C. C. Heritage, Technical Director of the company, describes the new product as "thermo-setting plastic molding compounds, of entirely new type."

Manufacturing facilities for the new product will be provided at Longview, Wash., where the company has lumber and pulp mills.

Other ideas have been advanced by the Weyerhaeuser Company's officials for further wood savings and utilization. Some of these plans depend on further research at the company's lumber division laboratory in Longview. All of these plans are subject to drastic change as circumstances dictate.

It is tentatively planned to build a kraft pulp mill there which would be complementary to the existing sulphite pulp mill and the lumber mill. Much wood now unsuitable for use in the lumber and sulphite pulp mills could be utilized to make kraft pulp. This would make possible further extensive utilization of species and grades of wood not now being used. If this kraft mill is built, it probably will have a capacity of about 200 tons per day.

The possibility of a synthetic wood plant making pulp boards or laminated products for plastics manufacturers, is also being considered.

#### Crown Zellerbach

Long-range planning is the term given by Crown Zellerbach Corporation for the monthly conferences of its executive leadership which have been going forward for the past fourteen months. While there is no catalogued "workpile" ready for publication at this time, or to be unleashed on the day after the whistles of peace have blown, this Corporation is known to have been getting its house in order to meet any changes which are necessary to meet the new peacetime responsibilities and opportunities which an expanded population has brought to Pacific Coast States.

The forestry program is discussed in another article. Fuller use of wood that comes to the mills is planned. Research in the modern central laboratory at Camas, Wash., is expected to play an important part in the program.

Sales, engineering and industrial relations executives also join in the monthly conferences. For with 2300 men in military service today, Crown Zellerbach Corporation is making plans for some human engineering by which it is hoped to make the employee step from a bomber or a battleship into the forest, papermill or sales office less abrupt than it conceivably could be without planning.

#### Powell River Co.

● Powell River Co., Powell River, B. C., is currently planning an expansion program after the war that may cost anything from \$10,000,000 or double that figure. Powell River Co. plans to gear its whole operation, already one of the largest in this part of the world, to maximum utilization of raw material based on sustained forest yield, coupled with a diversification of products that will greatly extend the marketing possibilities in export as well as domestic markets.

Some of the major changes planned in the paper mill processes are as follows:

1. Construction of a kraft mill to absorb offal from fir and cedar, also certain waste material.
2. Completion of the partly constructed bleach plant to permit production of high grade unbleached sulphites.
3. Progressive modifications and additions to existing paper machine equipment, so as to provide wide variation in type of end products required to meet various market opportunities. Production of groundwood, unbleached and bleached sulphites and kraft pulp will permit combinations over a very wide range.
4. Construction of board mill to produce both "hard" and "soft" types of pulpboard products.
5. Additions to present facilities for production of laminated paper products.



The company proposed to proceed with the manufacture of many by-products and those at present offering the most promise are:

1. Construction of plant to produce yeast from waste sulphite liquor.
2. Production of tannin from bark—low wood content in bark from hydraulic wood barker should make tannin production an attractive possibility.
3. Plastics for various purposes, incidentally including possible combinations with plywoods, pulp boards and laminated paper products.

The company anticipates far-reaching improvement of pondage and waterfront facilities to accommodate the proposed increased operations, and considerable space will have to be made available, as shown on the map accompanying this article.

#### Other B. C. Mills

● Pacific Mills, Ltd., is proceeding with construction of some of the units planned a year or so ago for the plant at Ocean Falls, B. C., and which were delayed until now because of wartime shortages of materials and equipment.

Building of a kraft precipitation plant at a cost of about \$135,000 is one of the projects under way and a bleach plant is planned.

Meantime plans for expansion of the mills on a more ambitious scale as materials become available are being drawn up by company executives.

Bloedel, Stewart & Welch Co., Ltd., prominent in lumbering and logging enterprises in British Columbia, had pre-war plans for construction of a new sulphite mill on the west coast of Vancouver Island. Here are some extensive stands of timber and the pulp species will be utilized in some way. Because of the new developments in plastics and big demand for kraft pulp, this company has been engaged in extensive research and modification of its plans. What kind of pulp manufacturing facilities it will build are still undecided.

#### Fibreboard Products Inc.

● Postwar plans for each of the different mills and converting plants of Fibreboard Products Inc. have been evolved during the past year. Each plant has been completely analyzed and listed by departments and studied for the purpose of covering all necessary replacements due to wartime wear and, in some instances, obsolescence. These studies

also indicate a great many additions in the form of buildings as well as equipment.

It is thought that Fibreboard's postwar planning covers so many items, five years may be required to fully complete the plan. The plan naturally covers increased production of most of the items presently manufactured by the company; improvement in quality, and the probable addition of many new items. All of this it is hoped will be the means of continued steady employment, not only for each of the employees now on the payroll and those returning from military service, but additional jobs should also be made available.

#### Marathon Mills of Canada

● Developments in Ontario are proving of great interest to the North American industry. Three new kraft mills are projected there.

Preliminary construction began on April 15 for the new Marathon Paper Mills of Canada, Ltd., of which Niles M. Anderson, formerly manager and superintendent of Puget Sound mills, is the vice president and actively in charge of design and construction.

Construction began on dock and mill foundations and a 5,000 foot Canadian Pacific Railway spur. Building is going ahead this year on the site for the new town of 1,500 population which will be officially named Everest, Ont., in honor of D. Clark Everest, president of the

parent company and the Canadian concern.

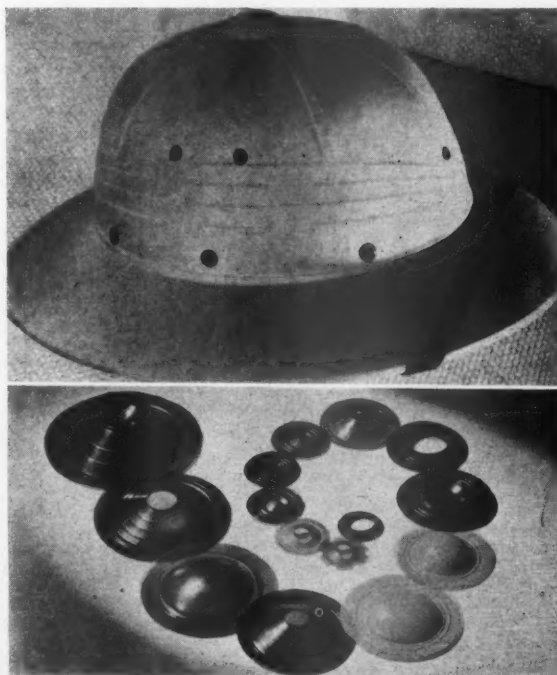
The mill will have a daily output of 250 tons fully bleached sulphate pulp and shipments can be made by rail or water. Most of it will go to parent companies, very little to open market. Mill and equipment probably will cost \$8,500,000. Post office, theater, stores, banking facilities, etc., and water system from Lake Superior for the town will add another \$1,500,000 to costs.

Latest processes and equipment will be installed. The company plans on complete utilization of the forest crop, using spruce, jack pine, balsam, birch, tamarack, poplar, etc., and plans are formulated for a forestry program. Cutting rights on 2,500 square miles of timber lands on the north shore of Lake Superior in the vicinity of the Pic River have been secured from the Canadian government.

#### New KVP Mill

● Kalamazoo Vegetable Parchment Co. hopes to have its new Canadian pulp mill, producing 200 tons daily of bleached kraft, in operation within a two-year period. On the site of the old Espinola mill, bought in 1943, this important KVP addition will produce only about 50-60 per cent of the Parchment, Mich., plant's requirements. Purchases of domestic pulp will continue as before the war. Normally 1800-2400 tons per month of pulp from Washington

(Continued on page 106)



**MOLDED PULP FIBER PRODUCTS** of the Hawley Products Co., St. Charles, Ill., are on display in the Paper Division, WPB, Washington, D. C. **JESS HAWLEY**, former Dartmouth football coach, is president.

Sun helmets for armed forces, as shown here, are made of molded fiber, covered inside and outside with cloth.

Below the helmet are molded diaphragms, of various combinations of wood and other fibers. Some are previously impregnated with plastic materials, giving them maximum strength with minimum thickness, and also waterproofing qualities necessary under the conditions of use by the armed forces.



## U. S. Proposes to Sell Big Timber Stands For Private Pulp Industry in Alaska

Terms of new offering by the U. S. Forest Service are outlined for the first time in the following article » » » Millions of acres of hemlock and spruce are available for inspection by prospective buyers and time limit is proposed » » » Fifty-year contract for sulphate, sulphite or newsprint mill near Ketchikan is suggested.



VIEW OF THE KIND OF TIMBER OFFERED FOR SALE BY THE U. S. GOVERNMENT to prospective pulp and paper industries. This photo, released by the U. S. Forest Service, was taken in Southeastern Alaska at the Klahini River mouth on the south side of Burroughs Bay.

**A**FTER a lapse of 15 years in which interest in the project had lagged, the United States government has decided to renew its efforts to establish a privately owned and operated pulp manufacturing industry in Alaska.

This article outlines a specific offer of 14 million cords (about 7½ billion feet) of hemlock and spruce in the vicinity of Ketchikan, Alaska, for a sulphate, sulphite or newsprint plant.

PACIFIC PULP & PAPER INDUSTRY, however, is informed that ten times this amount of commercial timber is available for inspection and advertisement if the demand warrants such action. Competitive bids would be requested for all sales. Additional units can be offered if a demand justifies. Timber, waterpower and plant sites are available in the vicinity and other Alaskan towns.

The decision of the U. S. Forest Service, Department of Agriculture, to renew its proposals for an Alaskan pulp and paper development comes at a time when the industry is experiencing a shortage of pulp-

wood and is facing increasing scarcity of available forest resources.

It also comes at a time when post-war planners are visualizing and working for a new era of development for the North Pacific Region. Alaska stands astride the new trans-Pacific air, sea and land routes. Little known to the general public, fine harbor installations have been built under impetus of war in what were once quiet little Alaskan seaports. Alaskan highways are being built and projected and air and sea traffic has increased many times.

A Joint Economic Committee created by the United States and Canada, with offices at Victoria, B. C., and Portland, Ore., is undertaking a cooperative study of North Pacific potentialities. The Pacific Northwest Trade Association, recently formed joint Canadian-U. S. enterprise and the first of its kind, also is actively interested.

Eventually, under certain government-imposed forest management regulations, a total of 140 million cords of timber (78½ billion feet)

—all of the commercially available stands in Tongass National Forest—may be utilized by forest industries. Any units of this forest are available for inspection right now, according to the Forest Service.

This forest of 16,073,000 acres in Southeastern Alaska, it is estimated, would be able to produce on a perpetually sustained yield basis a total of 800,000 tons of sulphate or sulphite paper a year or well over one-million tons of newsprint paper. (About 5,000,000 acres of forest have timber of commercial value.)

This is the first time that the government has specifically offered the pulpwood for sulphate production. Industry leaders have forecast a greatly increased demand for sulphate pulp after the war, owing to newly developing refining and bleaching processes, resulting in the development of many new uses for this type of pulp.

Two large companies considered opening newsprint mill operations in Alaska in the late 1920's—the last time that the development of the



industry there was actively considered. The depression ended these negotiations.

### 525-Ton Plant Envisaged

● The specific area offered now, under the terms of a proposed agreement, would supply a sulphate plant with a daily capacity of 150 tons for ten years and an enlarged capacity of 525 tons for the succeeding 40 years. (Maximum output of three standard large machines.)

Interested parties are requested to inspect the timber area and discuss the terms of contract with the Forest Service before November 30, 1944. It is tentatively proposed that a 50-year agreement be drawn up requiring the purchaser of the timber unit to install a pulp mill in Alaska within three years after the end of the war, or in any event, before April 1, 1949.

The timber would be paid for in advance installments as cutting proceeded, probably in installments of \$10,000 to \$40,000.

Another reason why some logging operators in the west consider this new offer by the government as particularly timely is the fact that the wartime Alaska Spruce Program operations are just winding up and these operations focussed attention of wood-using industries on the extensive timber resources in Southeastern Alaska. This great wartime spruce cutting program in Alaska—aimed primarily to obtain supplies for aircraft and other prime war industry manufacturing—was in the same general locality of Alaska as the pulpwood stands.

Some interesting figures on logging methods and costs have been arrived at by the Forest Service in connection with the proposed pulpwood operations. It is estimated that on the basis of labor and equipment costs of 1940, the total cost of unpeeled pulpwood logs delivered at local Alaskan mills would not exceed \$6 per 100 cubic feet (equivalent to \$10 per 1,000 board feet). Methods of logging would be similar to those in western Washington and Canada and British Columbia.

An Alaskan pulp industry would have an almost year-round logging season, cheap log transportation along protected sea channels between the woods and the mill, ocean shipping for inbound mill supplies and outbound paper products, water power for mill operation and an equable climate that permits of unhindered mill operation throughout the year.



THERE IS PLENTY OF WATERPOWER AVAILABLE in Alaska. Above is Long Lake, Port Snettisham, Tongass Forest—just one of the many so-called "hanging lakes" of between 100 and 1,200 ft. elevation and within two miles of tide-water. Most of them have been studied as sources of power.

Below, a stand of timber near Ketchikan. Saw timber is mixed with pulp timber here. The darker trees are Sitka spruce and the lighter ones are Western hemlock.

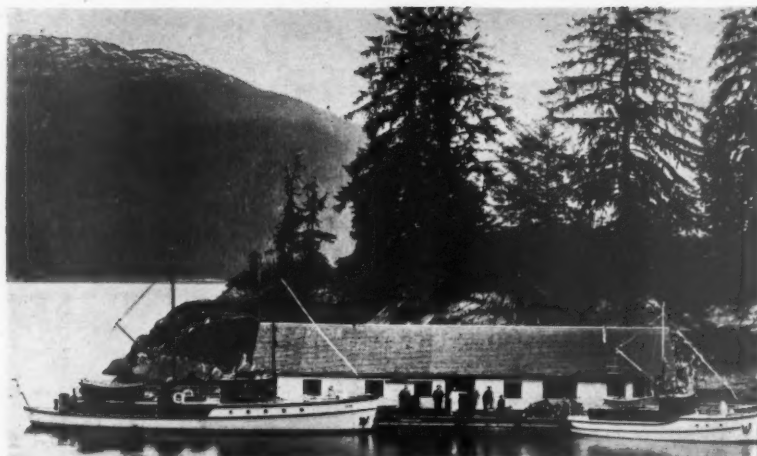
### Region is Accessible

This region of Southeastern Alaska consists of a long, narrow strip of mainland and an adjoining archipelago of hundreds of islands extending southeasterly from the main body of the Territory along the west side of northern British Columbia. The region covers an area about 350 miles long and 120 miles wide. The mainland strip and numerous islands are penetrated and separated by an intricate system of navigable straits.

There are no rail or motor road connections with the main body of the United States, except the stub pioneer motor road at the extreme

north which joins the Alaska Highway. The nearest transcontinental railroad point is Prince Rupert, British Columbia, a Pacific Coast terminal of the Canadian National Railroad system, 50 miles from the south boundary of Alaska and 95 miles from Ketchikan, the nearest Alaska town. Transportation to and from this region is largely by water, through the sheltered "Inside Passage," which lies back of the island groups that extend from Puget Sound to the north end of southeastern Alaska. Ketchikan and Juneau, the two largest towns, are 660 and 900 nautical miles respect-





**HOW U. S. FOREST SERVICE HANDLES ITS FIELD WORK** in Southeastern Alaska. This houseboat, or "wanigan," is the crew's home and is towed from place to place by sturdy motorboats, which keep up communications with headquarters and bring in supplies

ively from Seattle. Year-long steamship service is provided from Seattle and from Vancouver, British Columbia. The network of protected sea channels in this region is admirably suited to the use of motor-driven cabined boats. A railroad-car ferry or barge service could easily be operated between Alaska ports and the Prince Rupert terminus of the Canadian National Railroad, to permit Alaska pulp and paper to be shipped by this short route to the Middle Western States.

The pulp and paper markets of the Orient and Australia are as readily accessible to Alaska as they are to the Pacific Northwest and British Columbia.

Precipitation is extremely heavy and keeps down the threat of fires in the forests. There are no climatic factors which prevent or seriously hinder operations of forest industries. Inlets are free of ice throughout the winter. But short winter days are a handicap.

The population of southeastern Alaska was 25,240 in 1940. This included 6,500 native Indians.

Satisfactory locations for pulp mills are available in the vicinity of Juneau, 5,700 population; Ketchikan, 4,700; Sitka, 2,000; Petersburg, 1,300, and Wrangell, 1,300.

#### Timber Resources

● The Southeastern Alaska forest is a mixed stand of Western hemlock and Sitka spruce. In many places Western red cedar and Alaskan cedar are mixed with them. There is no Douglas fir. The forest cover extends from tidewater to an altitude of 2,750 feet but commercial timber ends at an altitude of about 1,500 feet.

It is estimated that 75 per cent of the commercial timber lies within two and one-half miles of tidewater. Forests are broken up by large blocks of scrub and peat muskegs.

The average volume per acre of the stands that are classed as commercial under present conditions is between 15,000 and 20,000 board feet but individual logging units vary widely from this average. Volumes of 40,000 board feet per acre are common over extensive areas. The majority of the merchantable trees are from two to four feet in diameter and from 85 to 140 feet high.

Overmature and young timber constitutes about half of the commercial timber of the region and must be relied upon to furnish a corresponding portion of the wood supply for pulp mills. It will yield primarily pulp timber, but much spruce saw timber of large size, cedar shingle timber, and long hemlock piling can be segregated from the pulpwood output.

In its more advanced stages, this overmature timber contains about 75 per cent hemlock and 25 per cent spruce by volume, the spruce consisting of scattered exceptionally large trees. The overmature hemlock is three to four feet and the spruce four to six feet in diameter.

Not so prevalent are mature timber areas with trees of generally good quality and ranging from two and one-half to four feet in diameter. Stands of even aged young growth timber, varying from a few acres to several square miles in size, are found throughout the region. They contain much larger percent-

age of spruce. Trees range from one to two feet in diameter and 90 to 150 feet high.

The predominating Western hemlock trees are commonly sound when young, but on reaching diameters of three and one-half feet, by which time they are largely overmature, they are affected by disease, and rapidly develop spike top and a serious heart rot. Hemlocks occurring on the poorer sites frequently have deeply "fluted" lower trunks, but in most of the commercial forests fluting is not an important factor.

Western hemlock is an excellent wood for a great variety of lumber uses and is superior to eastern hemlock as a pulping wood, according to the U. S. Forest Service.

In the usual mixed forest the trees of the faster-growing and more light-demanding Sitka spruce are larger in diameter than the hemlocks and exceed them in height. The large size and straight, clean, smooth-barked trunk make the spruce a very impressive tree. This is not an extensive type, and the aggregate volume of timber is small in comparison with that of the hemlock type. It occurs in patches, seldom more than 80 acres in extent and usually much smaller.

Sitka spruce is manufactured into all of the usual forms of lumber and into airplane stock. It is an excellent all-purpose pulping wood, comparing favorably with white spruce, the standard pulpwood of eastern North America.

Western red cedar in this region is confined to the southern half of southeastern Alaska, with Frederick Sound marking the northern limit of its range. Overmature trees have a height of 100-125 feet and diameter of five feet. It is a type commonly used for sulphate pulp.

The original forest cover in this region was doubtless almost pure spruce but such stands gradually tend to give way to hemlock. It is thought that under forest management this natural tendency toward pure hemlock can be checked and the proportion of spruce in the regrowth on the cutover areas materially increased through the use of cutting methods that favor the latter.

Clear cutting with reserved seed trees is the method now used in the sawtimber operations which characterize logging in Alaska. Ordinarily the areas so logged show ample reproduction including an increase in the proportion of spruce in the stand to 50 per cent or more. Clear cutting has also obviated much wind-



from  
and 90

a hem-  
l when  
ters of  
which  
nature,  
e, and  
d a se-  
curring  
y have  
but in  
ts flut-  
er.

cellent  
umber  
a hem-  
ording

e trees  
e light-  
larger  
ks and  
e large  
mooth-  
duce a  
not an  
gregate  
a com-  
emlock  
seldom  
at and

ed into  
umber  
is an  
wood,  
white  
ood of

region  
half of  
ederick  
a limit  
es have  
diam-  
e com-  
p.

in this  
t pure  
adually  
It is

manage-  
toward  
ed and  
the re-  
mate-  
use of  
he lat-

d seed  
in the  
charac-  
rdinar-  
ample  
crease  
in the  
Clear  
a wind-

fall which presents a danger with these shallow rooted species under a selective cutting method. Due to the windthrow danger seed trees on the clear cut areas are not left as scattered individuals but in fairly large groups, a practice which causes little interference with logging operations. If further study should show that favorable results can be obtained by individual tree or group selection methods of cutting certain classes of sites, such methods may be adopted for those sites.

It does not appear at this time that the disposal of logging slash on pulpwood cutting areas need extend further than lopping and scattering of tops so that they lie close to the ground. The fire hazard is usually so low here because of the wet climate that expensive slash disposal work is ordinarily not required.

### 78-Year Crop

● With an estimated commercial stand of virgin timber on the Tongass Forest of 78.5 billion board feet, and allowing an average of 78 years as the rotation period during which this virgin timber may be entirely removed under sustained-yield forest management, approximately 1,600,000 cords of wood of 600 board feet each can be taken from the forest each year in this period. If the entire output of timber were devoted to pulp manufacture it would be sufficient to produce 800,000 tons of sulphate pulp a year, or well over 1,000,000 tons of newsprint paper per year.

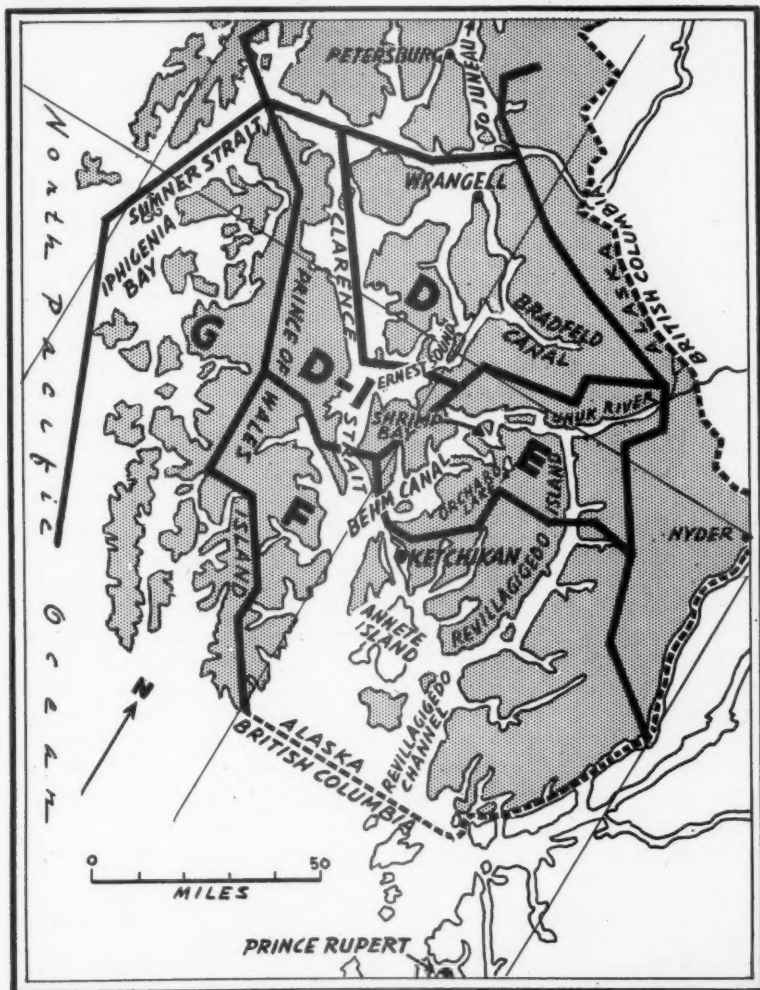
Machine logging with donkey engines and wire rope has proved to be the most practical means of moving logs from the stump in this area. This is because of rough topography and wet ground. Ground skidding and high lead systems are now used but one of the overhead systems will probably prove most economical for extensive pulpwood operations.

A large percentage of timber can be logged into tidewater by use of two and three donkey engines working tandem. Log flumes, short railroads or truck roads will be required to transport timber in longer valleys. Log driving is not practicable in the turbulent streams.

Timber is commonly handled in full tree lengths. Davis-type rafts are required in the winter for tows in exposed channels. Cost of towing sawlogs is about 1½ cents per 1,000 board feet per mile. The cost per 100 cubic feet of pulpwood logs should not exceed this figure. It may be less.

Floating log camps, towed from

THE PANORAMIC VIEW SHOWN ON THE COVER OF THIS ISSUE was photographed some 30 miles north of Ketchikan, showing Shrimp Bay leading in Behm Canal. It also shows Orchard Lake. See Allotment E below.



THIS SHOWS THE AREA IN SOUTHEASTERN ALASKA WHERE THE U. S. GOVERNMENT is offering timber for a pulp and paper industry. Each of the areas marked D-1, E, F and G is a "self-sustaining" Pulpwood Timber Allotment. Each one has water power, "perpetual" supply of timber, a good mill site, etc. There are other allotments to the northward in Tongass Forest, but these southernmost ones are favored for pulp industries.

TONGASS NATIONAL FOREST is the darkened area. It takes in much more territory northward.

one cutting to another, are in general use in Alaska. Donkey engines and other equipment are moved on scows and floats. Average cost of sawlogs exclusive of stumpage, just prior to the war was about \$10 per 1,000 board feet. Labor and equipment basis costs for pulpwood, on the 1940 basis, should not exceed \$6 per 100 cubic feet delivered at Alaskan local mills.

### Water Power Resources

Southeastern Alaska has excellent potential water-power resources for industrial use. Over 800,000 horsepower has been covered by recon-

naissance or more detailed surveys to date, and further power explorations are almost certain to disclose additional important sites. Outstanding characteristics of the power sites are: High-head developments, short conduits, small drainage basins with heavy runoff, good water-storage facilities, accessibility of the projects to navigable waters, and the opportunity to locate industrial plants either directly at the power-house sites or within short power-transmission distances.

There are no very large capacity power sites. The largest so far in-



### VOLUME OF STANDING TIMBER

The following represents a conservative estimate of the volume of commercial timber by species on the Tongass National Forest:

Species	Board Feet	(Cords)	Per cent
Western hemlock .....	58,000,000,000	(104,400,000)	74
Sitka spruce .....	15,800,000,000	( 27,000,000)	20
Western red cedar .....	2,350,000,000	( 4,300,000)	3
Alaska cedar .....	2,350,000,000	( 4,300,000)	3
	78,500,000,000	(140,000,000)	100

vestigated has a year-long capacity of 32,000 horsepower. However, 50,000 horsepower can be developed in one power house from two sites adjacent to the head of Speel River Arm of Port Snettisham near Juneau, and the development of two other sites in the same locality would increase the concentration at this point to a total of 75,000 horsepower. Three sites adjacent to the head of Bradfield Canal near the town of Wrangell have a combined capacity of 54,000 horsepower. A concentration of 60,000 horsepower can easily be effected at Ketchikan.

The Federal Water Power Act provides for the development and use of power sites under a form of

license calling for an annual rental fee per developed horsepower and covering a period not in excess of 50 years. Licenses are renewable under certain conditions at the end of the period for which granted.

The nearest present pulp and paper mill to Alaska is Pacific Mills, Ltd., Ocean Falls, B. C., 296 miles south of Ketchikan. It is well known that many industry leaders, who have given thought to the future course of the industry, are generally agreed that eventually pulp and paper will be produced in Alaska. The question usually has been when—and most are agreed that the post-war era may speed its advent.

The U. S. Forest Service has a

program mapped out for dividing the Alaska forest lands into pulp-timber allotments, local use allotments and general use areas. This latter would be all areas not in the two types of allotments.

The Forest Service, with headquarters at Juneau and Tongass Forest division headquarters in Juneau, Ketchikan and Petersburg, is fully qualified to carry on administrative matters concerning the use of this timber without reference to Washington, except on questions of general policy.

So far as the Forest Service is able to control the location of pulp mills in southeastern Alaska, they will be so distributed that an adequate timber supply under the management plan will always be available within a reasonable log-towing distance of each plant.

A condition of any large sale will be that the wood be given at least primary manufacture in Alaska. Other things being equal, preference will be given to such industries and applicants as contemplate the most complete manufacture in Alaska.

The stumpage alone is offered for sale from the national forest, the land being retained by the United States for the production of successive forest crops.



SHOWING HOW ALASKAN PULP TIMBER GROWS DOWN TO THE LINE OF HIGH TIDE. Much of it is easily accessible. This is a view showing surrounding timber cover at Yes Bay, near Ketchikan, in the Tongass National Forest.



## PROPOSED AGREEMENT PROVISIONS FOR A SPECIFIC SALE COVERING A PULPTIMBER UNIT IN VICINITY OF KETCHIKAN

(1) The total amount of timber proposed for placing under contract is an estimated 1,350,000,000 cubic feet, (roughly equivalent to 7,500,000,000 feet board measure). This volume is based on the requirements for a 50-year supply of a sulphate or sulphite pulp mill having a daily capacity of 150 tons for the first 10 years and 525 tons daily for the remaining 40 years.

(2) The agreement will cover a period of approximately 50 years.

(3) The sale areas within which logging units are to be laid out to supply the timber for the plant will be designated by the Forest Service in 1944 in advance of any formal offer of the timber for sale.

(4) At the same time as (3) above the Forest Service will also designate specific logging units, estimated to contain a 25-year timber supply for the plant, which are to be cut first. Units to be logged after the above have been cut will be selected and designated currently, as logging progresses, in advance of the purchaser's needs, by five-year periods.

(5) Insofar as the timber quality on the sale area will permit, the logging units to be designated periodically in the future for then current operations will not be inferior in timber quality to those being then commonly logged for pulpwood on other Alaska sales or on the northern coast of British Columbia, and the loggability of the included timber stands will be of such character that, so far as the delivered log costs are concerned the purchaser's pulp manufacturing operation will not be in a disadvantageous position in comparison with similar enterprises in the Puget Sound region.

(6) The purchaser must agree to install in Alaska a pulp mill of not less than 150 tons daily capacity within three years after the date of execution of the timber sale agreement or within three years after the cessation of active hostilities in the present war, whichever proves to be the longer period, but in any event before April 1, 1949. One year after the execution of the agreement or cessation of active hostilities whichever is later, but in any event not later than April, 1947, the purchaser shall show that the principal items of machinery and equipment for his mill are on order with the manufacturers. The purchaser must agree to enlarge the plant to a capacity of 525 tons daily within 10 years of the date of the initial installation, for which enlarged plant the maximum rate of cutting permitted (see paragraph 11) would furnish a log supply.

Failure to make satisfactory showings on the above requirements as to the initial plant will subject the timber sale agreement to cancellation. Failure to make the enlargement to the specified capacity in the time allowed will result in a reduction of the total timber volume under sale to the point where the remaining volume is commensurate with the plant capacity actually installed.

(7) The bid rates of the successful bidder will constitute the stumpage rates to be paid for the first five-year period of operation, which period will be specified as ending March 31, 1953. Material to be used for pulp, regardless of species, is to be scaled in units of 100 cubic feet of solid wood and will be paid for at one rate, except that the higher grades of Sitka spruce logs 24 inches and larger in top diameter will be scaled as sawlogs and paid for at the sawlog rate.

Logs to be used for other purposes than pulp will be scaled and paid for on their board foot contents. Piling and poles will be scaled in linear feet and paid for on that basis. The Scribner Decimal C log rule will be used in scaling by the board foot.

The rates to be charged throughout the period of the sale agreement will be subject to readjustment at five-year intervals to make them conform to the then current value of the stumpage; or at other times upon a proper showing by the purchaser of need for a reduction in rates. The rates will be fixed by reappraisals to be made at the beginning of each five-year period and such reappraisals shall give consideration to the estimated cost for the Alaska plants of manufacturing and shipping as compared with the costs for similar enterprises on Puget Sound, but can in no event be less than the rates at which the timber was originally appraised and advertised.

(8) Stumpage rates to be named in the timber sale advertisement as the minimum that will be considered in the bids will be determined by an advance appraisal of the timber. In fixing these rates, which are to apply to the timber logged prior to March 31, 1953, consideration will be given to the competitive position of the prospective Alaska industry in relation to the existing pulp industry on Puget Sound and to the risk that will

be a feature of the establishment of this enterprise in this new pulp-producing region.

(9) In addition to payments for stumpage the purchaser will make deposits with the government to defray the cost to the Forest Service of work to be done on the cutover areas to improve the future stand of timber. The deposit will probably amount of about 10 cents per 100 cubic feet or an equivalent amount for timber scaled by other units of measure.

(10) Timber will be paid for as cutting proceeds in installments of \$10,000 to \$40,000.

(11) At least two-thirds of the purchaser's yearly pulpwood requirements are to be taken from the areas under sale to him. The remainder may be taken from sales made on areas outside this proposed agreement to independent loggers or others. The minimum yearly amount to be taken from the purchaser's sale areas will be 5,000,000 cubic feet and the maximum, 31,500,000 cubic feet, but these amounts may be changed for any year with the approval of the Forest Service when circumstances justify such action.

(12) Strips and blocks of timber having special scenic value in connection with water courses, lakes, recreation sites and highways will be reserved from cutting.

(13) The logging units are to be clear cut with the exception that not to exceed 10 per cent of the merchantable timber volume within an actual cutting area is to be left for re-seeding purposes, but this provision may be modified at dates of reappraisal of stumpage rates.

(14) All trees on the logging unit, not designated for reservation, which contain one or more logs at least 20 feet long and 12 inches in top diameter and having a net volume of not less than 25 per cent of the total volume of the tree are considered merchantable and will be cut.

(15) All logs are merchantable which are 16 feet or longer, have a diameter of not less than 6 inches at the small end and are at least 50 per cent sound; but logs containing less than 4 cubic feet of sound material need not be removed. Excessively knotty top logs will be culled.

(16) Timber with a special and higher value for some other product than pulp and which, in furtherance of the public interest should be so utilized (e. g., spruce aircraft stock for national defense) shall be made available by the purchaser for manufacture into such product.

(17) The purchaser must take adequate precautions against the starting of forest fires and must make available his woods forces and equipment for fire-fighting purposes upon request by the Forest Service.

(18) Woods operations must not be permitted to interfere with salmon in spawning streams or to injure the spawning beds in any way.

(19) To the extent that such local laborers have the necessary skills and are practically available, the woods and other crews for the purchaser's operations will be required to be recruited from among all residents of southeastern Alaska.

(20) The timber sale agreement cannot be assigned without the approval of the Chief, Forest Service, but an assignment in trust of the purchaser's beneficial interest in it as security for a bond issue will not be construed as a transfer of the agreement, or as a release of the purchaser or his surety from their obligations or as authority for the trustee to conduct logging operations hereunder except as an agent for the purchaser.

(21) A surety bond of \$50,000 must be provided for performance under the agreement.

### Formal Notice of Sale

If decision is reached to offer this proposed pulp timber chance for sale the offer will take the form of advertisements in lumber and pulp trade journals of regional and national circulation and of legal notices in local papers in Alaska. The advertising period will be three months or longer. Sealed bids will be requested and a substantial deposit with bid, perhaps \$100,000 will be required. The deposits of unsuccessful bidders will be returned. The deposit of the successful bidder will be retained as liquidated damages if the timber is awarded to him and he fails to execute the agreement, install the initial plant, or meet other requirements of the agreement within the periods specified; otherwise his deposit will be credited to stumpage payments.



## WOOD UTILIZATION: More Hydraulic Barkers Are Installed, Other Equipment Is Needed

Urgency of conservation is challenge to ingenuity of machinery manufacturers / / / Light logging equipment would make possible recovery of much wasted wood / / / War Production Board promises cooperation in campaign to get more production as natural resources become more scarce / / / Defibrator-Chempulper utilizes wood species formerly ignored.

**D**EVELOPMENT of machinery and other equipment making possible more complete utilization of wood resources is perhaps the most significant development in the pulp and paper industry today.

It is an urgent development because of the wartime manpower shortages and resulting wood shortages. But from a long-range point of view, it is also most important to the industry because of higher taxation, higher material costs and the increasing scarcity of natural forest resources.

There are two places where remarkable savings already are being made by development of new machinery and equipment—in the mills and in the woods. What little has been accomplished thus far has been due mostly to the ingenuity and enterprise of the pulp and paper companies themselves.

Now this has become a challenge to the ingenuity and enterprise of the machinery and equipment manufacturers. It is up to them to join with the industry engineers in this pioneering work. More improvements in the mills are needed in order that a greater yield of pulp is possible from the available wood. And, also, in order that less common species of wood may be utilized. Special light equipment is needed in the woods, in order that it can be made profitable to bring out small

or broken wood now left on logging stands.

PACIFIC PULP & PAPER INDUSTRY, in response to inquiries, is informed by the U. S. War Production Board that it will cooperate to the fullest in making possible the development and installation of such new equipment even before the war is over. The need for wood savings is that important to the WPB. Said Allan Hyer, in charge of equipment distribution in the Paper Division, War Production, in a telegram to this magazine:

"Some material is available for improvements for handling logs, such as barkers and chippers, and several applications have been approved."

One important way in which wood is going to be more closely utilized after the war is in the construction of new kraft mills, particularly in conjunction with already existing sulphite mills. This is discussed in the previous article. Five kraft mills in Canada and at least two more in the United States are projected. Kraft mills are able to use types and qualities of wood unsuitable for sulphite production.

Development of plastics or synthetic wood plants and alcohol reduction plants in conjunction with pulp and paper mills is another important way in which greater utilization of wood is being achieved, and will be even to a greater extent after the war.

### New Mill Machinery

● Perhaps the most interesting of all engineering feats in the industry is the development of whole log hydraulic barkers and whole log chippers. The Weyerhaeuser Timber Co.'s barker-chipper installation at Everett, Wash., and the Crown Zellerbach hydraulic barker at Port Townsend, Wash., have been in operation for some months in the west. Two other hydraulic barkers are now being installed in the Rayonier mills at Hoquiam and Port Angeles, Wash. Another type is in use at the Eastern Corp., South Brewer, Maine, mill and also is being installed at a New York-Pennsylvania Co. mill. Nearly all the far western pulp mills

in United States and Canada plan to install hydraulic barkers.

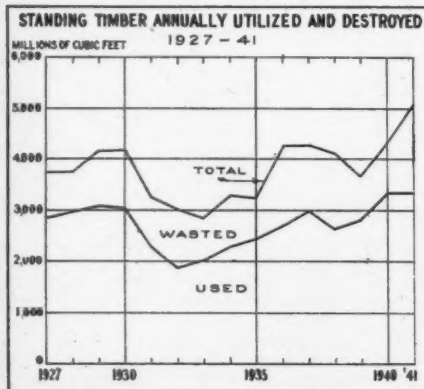
Another important development which is saving wood and making possible the use of many species of woods heretofore considered worthless for pulp manufacturing is the Asplund Defibrator and the Defibrator-Chempulper. There are now seventeen of these machines in successful operation and several more are being installed by Paper & Industrial Appliances, Inc., 122 E. 42nd St., New York.

Refiners and pulp savers or savealls are among other equipment making possible a higher yield of pulp. The Bird Machine Co., manufacturer of an efficient "save-all," recalled in its publication "Stuff Box" that a nationwide survey in 1926 revealed that seven per cent of pulp was being lost in white water and that the value of recoverable fiber in those days ran as high as \$500 per day.

In a recent address in Bellingham, Wash., Lawson Turcotte, executive vice president of Puget Sound Pulp & Timber Co., said that as soon as materials are available, installation of hydraulic log barkers for whole logs "no doubt will be made in all the larger pulp mills of the Pacific Northwest." In this talk he discussed utilization effected by the alcohol plant now under construction at his company's big pulp mill and referred to the University of Washington industry-sponsored and financed research program to find other uses for lignin and other unused chemicals in pulp mill effluent.

Mr. Turcotte said that in this region the whole log barkers and chippers would "have the effect of saving the total annual cut of timber by pulp mills of over a billion feet every sixth year."

Another informal estimate made by a western mill manager on the basis of about 20 installations of the new equipment in Canadian and United States mills of the west, is that saving of at least 250,000,000 feet (446,000 cords) of wood per year would be made, or, conversely, that mills could produce 300,000 tons more pulp each year with the amount of wood now being eaten up.



CANADIAN TIMBER—used and wasted—according to official survey over 1927-1941 period.



With total Pacific Coast (U. S.) pulp production at less than 1,600,000 tons in 1943, such a saving obviously is quite an item to be considered.

Wood preparation departments of mills in all parts of the United States and Canada are so antiquated—held back by wartime restrictions—that great improvements in efficiency are possible.

The hydraulic barker wood savings are extensive because the use of water pressure removes practically no wood with the bark. Under the older methods of mechanical barking some wood was taken off with bark. But the greatest savings in both whole log barking and chipping—at Everett the new chipper is 171 inches in diameter—is the elimination of much saw kerf. It is remarkable how much wood is lost in sawing up big western logs into cants or smaller lengths and widths before being barked and chipped.

#### Future Barkers

● Future installations of big whole log hydraulic barkers offers opportunities for developments by high pressure pump manufacturers. Steel fabricators and electrical industry

manufacturers are also going to have a hand in these developments but the important innovations will be the result of further research in water and power use.

A favored type of hydraulic barker for mills which still plan installations is one that will have multiple jets, surrounding the log in adjustable positions, instead of single or double jets striking the log at one fixed point. Also greater speeds in handling big logs will be an objective.

However, an economic problem is keeping the horsepower requirements down to around 1,000 h.p., and water requirements to reasonable amounts. More nozzles and more speed would ordinarily tend to increase these items. There are likely to be interesting developments in this field.

#### The Everett Barker-Chipper Plant

● A complete description of the Weyerhaeuser Timber Co.'s hydraulic barker and whole log chipper at the Everett, Wash., mill was published in our 1943 Review Number (May issue), with numerous photographs. A photograph appearing

with this article shows this barker in action and the caption gives a brief description of its operation.

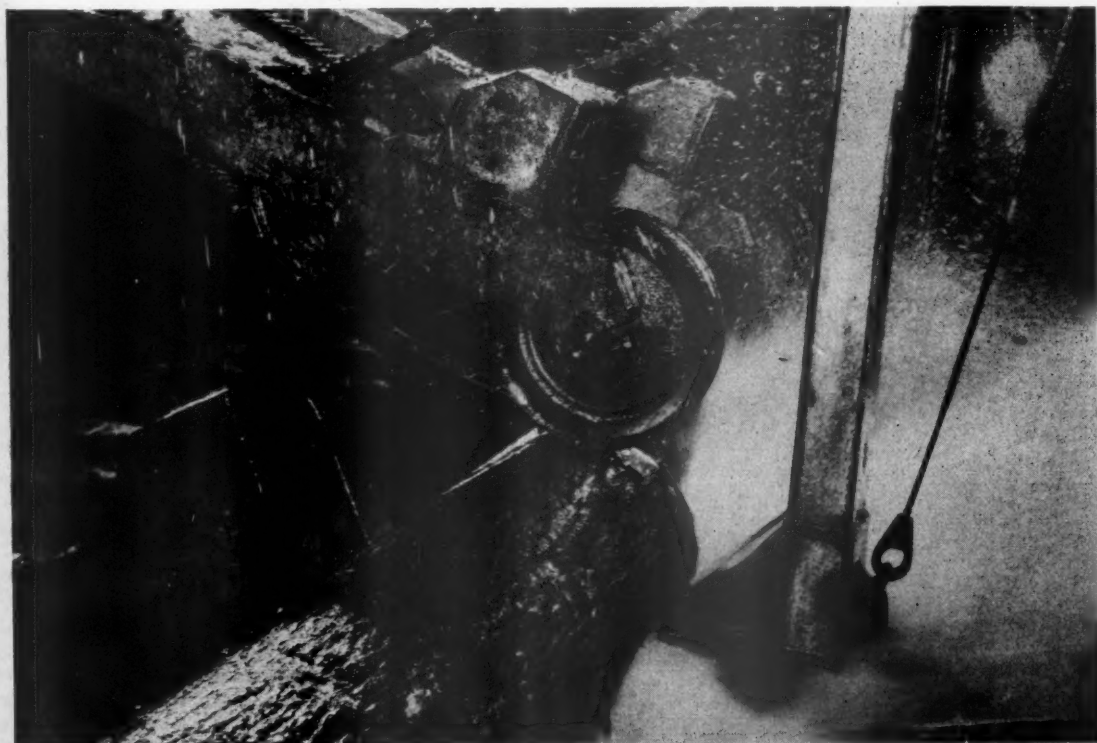
Recent records show that the combination barker-chipper installation at the Everett mill has increased pulp production per thousand feet of logs approximately 20 per cent.

Before the end of the war, if materials are available, a start will be made on plans to install a hydraulic barker and whole log chipper at Longview, Wash., site of another unit of Weyerhaeuser Timber Co.'s pulp division. As planned for many months, this installation will be similar to the one installed at Everett.

#### Weyerhaeuser Objectives

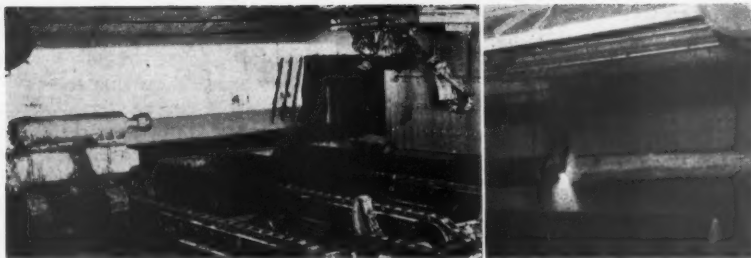
● Conservation of wood resources and more complete and efficient use of all the wood have long been prime objectives of the Weyerhaeuser Timber Co. One of the interesting developments of the war period has been the utilization by that company of logging culls to make box shooks and packaging wood.

Other ideas have been advanced for further wood savings and utilization. Some of these plans depend



**THE HYDRAULIC LOG BARKER** in action at Weyerhaeuser Timber Co.'s Everett, Wash., pulp mill. Two traveling nozzles with overlapping sprays run on tracks underneath the log. Water pressure is 1400 lbs. p.s.i. Steel arms and indexing chain hold log against steel knees. Indexing chain rotates log in even increments, continuously presenting fresh bark to the jets below. Barker is capable of handling logs 9 to 72 inches in diameter and 12 to 26 ft. in length. Westinghouse 1,000 hp. squirrel cage induction motor drives high pressure pump.





**TWO VIEWS OF THE NEW HYDRAULIC LOG BARKER** which went into operation this year at the Port Townsend, Wash., Division of Crown Zellerbach Corp. In principle, it operates similarly to a lathe and this principle is being put into effect in new barkers at other mills at Port Angeles and Hoquiam, Wash. At left, the barker mechanism. Logs approach on the floor transfer chains. Each log is raised by loaders to centering height. The tail stock, at left side of picture, holds the log against a driving head, shown at right. The overhead nozzle and nozzle carriage is shown at right. As the log is rotated, the nozzle maintains a constant angle of impingement because of the steel shoe, attached to inner side of the pipe.

At right, the barker in action. The jet of water is traveling to the left. It strikes the log with 650 lbs. pressure psi.

upon further research at the Weyerhaeuser Timber Co.'s new Development Department in Longview, headed by C. C. Heritage. It is tentatively planned to build a kraft mill there, as reported in the previous article. Much wood unsuitable for the company's lumber and sulphite pulp mills could be utilized to make kraft pulp.

The possibility of a synthetic wood plant, making pulp boards or laminated products for plastics manufacturers, is being considered. Production of tannin from bark has been studied for some months.

Photographs of the Crown Zellerbach whole log barker put into operation early this year at Port Townsend are also shown on these pages—with a description of operation. A more complete description and a number of pictures were published in the February, 1944, issue of PACIFIC PULP & PAPER INDUSTRY.

#### Crown Zellerbach Program

● Crown Zellerbach Corporation is paying a great deal of intelligent attention to its problem of pulpwood supply for the future. Already mapped out for growing cycles which are aimed at ultimately providing a sustained timber supply for the years ahead, Crown Zellerbach Timber Department has indicated an intention of going into experimental forestry with a view to developing the techniques and machinery which will be necessary to salvage more of the wood from harvested areas than previously has been economically possible.

Meanwhile it will hold consistently to the planned growth program.

In some areas new growth acreage has been added to older growth, and large blocks are being withheld from

cutting until the whole area has attained the growth necessary to guarantee a sustained yield. At Neah Bay, Washington, where the Corporation has been logging for years on its own and Makah Indian Reservation lands, it has been successfully demonstrated that planned growth and planned cutting can be kept in perpetual balance. By cooperating with the Indian forest service in all phases of forest management, the Corporation has been able to help nature restore the lands. A good seed spread in the drying winds of late summer, and a heavy rainfall for almost six continuous months, combine to make the Neah Bay region a fine regenerative area which will continue to provide its share of timber for the Olympic Peninsula mills of the Corporation.

"We know that the problem of wood supply is a big one that will challenge the best thinking and efforts of our loggers and forestry department," said Vice President Don S. Denman, who is in charge of timber activities for Crown Zellerbach. "We don't know all the answers, but we are earnestly aiming and working towards fuller utilization of the tree than has previously been possible; and also rapidly placing all our lands on a growth basis where they can be scientifically logged. Our workers and the public, too, can make a big contribution to tree growth and protection by keeping our forests green and free from fire which has destroyed so many trees in the past."

In addition to tackling the wood supply problem at its source, this Corporation plans to continue to improve its barking and manufacturing techniques in order to make fuller use of wood.

#### Rayonier Installations

● The installation of new whole log hydraulic barkers at the Rayonier Incorporated divisions at Port Angeles and Hoquiam, Wash., is announced. These barkers will be somewhat similar to the one at Port Townsend, operating on the lathe principle, and it is expected they may be in operation in July.

W. E. Breitenbach, resident manager at Port Angeles, said operations indicate a possible saving of seven to ten per cent of wood convertible into chips for pulp by the barker alone. Powerful pumps with a capacity of 500 gallons per minute will create 1100 pounds pressure p.s.i. for the operation.

At the Hawley Pulp & Paper Co., Oregon City, postwar plans include the substitution of a hydraulic, for an older type, barker. These plans naturally include consideration of whole log chippers, also.

Columbia River Paper Mills plans the installation of a system of hydraulic barking of logs as soon as it is obtainable. The hydraulic barker at the mill in Vancouver, Wash., may be of a different type than those developed on Puget Sound.

The lumber production section of this mill is an important unit. In an arrangement to make best possible use of wood, the parts of logs are diverted to the lumber or paper mill. Many improvements are planned in the wood preparation department. The use of large chippers is contemplated.

The Oregon Pulp & Paper Co., at Salem, Ore., also is such an extensive user of big Western pulpwood that the savings afforded by hydraulic barkers cannot be overlooked. It is probable that hydraulic barking also will be employed at this mill. Other wood preparation improvements are considered.

Fir-Tex Insulating Board Co., St. Helens, Ore., plans the installation of an efficient cut-up mill including hydraulic barking of logs as soon as it is obtainable.

Spaulding Pulp & Paper Co., Newberg, Ore., expects to turn to a hydraulic barker in place of the mechanical barker now in use.

#### Powell River Barker

● One of the interesting features of an extensive postwar program planned by Powell River Co., Powell River, B. C., is installation of a whole log hydraulic barker and whole log chipper plant, similar in a general way to the extensive Everett installation. It is expected to increase yield



per 1,000 feet of logs for Powell River by 15 to 20 per cent.

In further diversification of Powell River's production, plans are also being made for a kraft mill to absorb offal from fir and cedar, and also certain waste material; for a board mill to produce "hard" and "soft" types of pulpboard products, and for an addition to present facilities for production of laminated paper products. The company also is considering a plywood mill, a shingle mill and production of tannin from bark and plastics, including possible combinations with plywood, pulpboard and laminated papers.

### More Powell River Plans

● The barking of logs prior to sorting will also materially increase the efficiency of sorting into grades and subsequent milling for selective lumber. It is proposed to install this barker at a site adjoining the present government wharf so that it may draw unbarked logs directly from the receive pond, bark them and deliver them directly to the log grading and distributing conveyors.

An auxiliary hydraulic slab barker operated from the same high pressure pump will also be provided to handle lumber mill waste material which will be brought in by scow from various sawmills.

The log barker will deliver the barked logs directly to a grading deck where the logs will be classified and marked in accordance with their suitability for the various processes. At least ten different grades will be required to correspond with the various end products whose manufacture is contemplated.

In the far west, several prominent industry leaders have predicted the larger lumber mills will also install whole log hydraulic barkers. In each of these big mills, savings of thousands of dollars annually are possible. The wood saved could be used for laths, synthetic woods or sold to pulp mills.

Tests already have been made with hydraulic barking of redwood and the California woods industries are aware of the possible savings, also.

The hydraulic barker installed, or about to be installed in some eastern U. S. mills is a small machine known as the Allis-Chalmers streambarker.

The unit can process from 10 to 11 cords of pulpwood per hour, and the number of men needed to operate it constitutes the smallest force required by any machine of its type and capacity. In addition, the savings in good pulpwood resulting from the elimination of broom ends, unnecessary axe cuts, and knot boring help to make the operation exceedingly practical. It has large waterproof doors on each side of the outer frame for quick accessibility to the interior and is floodlighted from the inside so that logs can be observed while they pass through the machine.

### The Defibrator - Chemipulper

● The Defibrator machine and process mentioned earlier in this article was invented by Arne Asplund of Stockholm, Sweden. The Defibrator-Chemipulper is a combination of the Asplund Defibrator and a continuous reaction chamber. This development and improvement was made by R. D. Kehoe, long active in the in-

dustry in New York, and J. Brookes Beveridge, well known Canadian pulp and paper mill operator and engineer.

The Asplund Defibrator produces high yield (93%) wood fiber for insulating and hard board manufacture, dry felt for saturating and bulk fiber for insulating purposes, also fiber for plastics.

The Defibrator-Chemipulper development is a continuous pulping process, which produces semi-chemical pulps for the manufacture of paper and paper board and has great promise for the production of standard grades of chemical pulps.

With this machine, it is not necessary to cook to the point of disintegration, as in digesters, because disc refiners in the machine actually defiber the chips with desired degree of cooking. The chips are defibered under pressure, effecting a saving in power. Almost any type of wood chipped to proper size can be made into pulp.

Percentages of yield from wood in the various installations is from 65 to over 90 per cent, depending, of course, on chemical treatments and the quality and type of products desired. Even a substitute for waste paper—now critically short—has been developed.

It is useful in the south where gum and other small diameter woods have been used for only a few years by the paper industry—the first time since Oglethorpe landed in Georgia that any use has been made of this wood except as a fuel. A use for Jersey pine, considered even a poor firewood, has been made by this machine.

Jack pine, beach, birch, oak, white pine, aspen, all mixed hardwoods, California eucalyptus and redwood are among various species successfully pulped. It is possible the machine may be utilized with sawmill and veneer waste in the west. A semichemical pulpboard has been made

in seven minutes cooking time from heretofore worthless catfaces (from the turpentine-tapped) trees of the south.

● William A. Kinney, production manager of the Pioneer Division (Los Angeles) of The Flintkote Co., says:

"Very happy about our Defibrator-Chemipulper. We use it in the manufacture of roofing felt and as such it is one of the things that has saved our lives. Rags are very scarce, and the machine has helped by opening up the felt and giving it the characteristic of rags."

### Haug Refining Unit

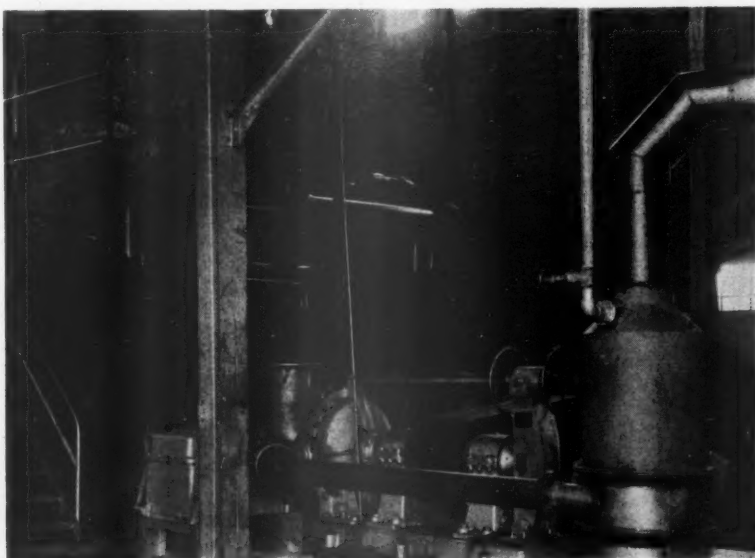
● The Haug Refining Unit, made by Anton J. Haug, Nashua, N. H., is another example of a machine which serves to save wood heretofore lost in pulp manufacturing.

One of these units is being shipped this month to a mill overseas.

The St. Regis Paper Company has one of the late designs, size 2. This machine refines all the screenings of the St. Regis 150 ton groundwood mill at Deferiet, N. Y. Bleached groundwood made by St. Regis has been used since 1941 by Fortune magazine for most of its uncoated paper. The refined stock from the Haug machine is good enough to be mixed with the St. Regis No. 1 pulp. The total power consumption of this unit is 40 to 50 h.p.

One of the latest size 3 Refiners specially designed for the larger mills has been in operation in a Southern mill on kraft pulp mill rejects for about a year. The quality of the refined stock is highly satisfactory. The machine handles about 40 tons per day of combined knots and screenings. The knots are first broken down in a Williams Hammermill and then go with the screenings into a mixing chest which supplies the Haug Refining Unit. The total power consumption of

(Continued on Page 120)



ONE OF THE SIX SMALL TYPE DEFIBRATOR-CHEMIPULPERS installed at the Ruberoid Co. mill, Gloucester, N. J. Many of these machines, large and small, have been installed by Paper & Industrial Appliances, Inc., in U. S. and Canadian mills making paperboard, wallboard, felts, semichemical pulps, etc. They have made possible substantial increases in the yield of pulp, also utilization of less common wood. This machine pulps Jersey pine which formerly had practically no economic value.

Chips enter via hopper at top left. They are compressed, enter cooking zone and move toward disc refiners where mechanical defibrating action takes place.



## PAPER AND PAPERBOARD: North American Production Maintained At High Level

Container problem is prime worry of WPB with drastic cuts in supplies facing civilians  
 Government officials fear inadequate supplies of paper may adversely affect the  
 successful prosecution of war Paper merchants and salesmen had a good year  
 in 1943 but their problems are multiplying.

IT may surprise many people to know that the North American output of paper and paperboard in 1943 was again up around 21,000,000 tons—just about where it was in 1941 and 1942—despite the intensification and expansion of the so-called direct war industries and the drain on manpower and shortages of raw materials.

That fact indicates how paper and paperboard were recognized as of prime importance to the war.

Total paper and paperboard production in the United States in 1933 was reported by the government as 17,035,688 tons. This is practically the same as 1942's total of 17,083,862 and only slightly below the all-time record high of 17,762,365 tons in 1941, according to government figures. With Canadian production (which is about 80 per cent newsprint) from 4,000,000 to 5,000,000 tons annually, the two nations have

kept their total figure close to 21,000,000 annually since before the United States entered the war.

It is particularly significant that the production of paperboard in relation to the total output of paper has materially increased. In 1942 paperboard represented 46 per cent of total paper production in the United States and in 1943 it represented more than 50 per cent. Even so, there has been gradually more severe restriction on civilian use of paperboard, which goes largely into military and government use.

Perhaps the most remarkable phenomenon that has occurred in the pulp and paper industry has been its outstanding growth in the past two decades. One-quarter of all the pulp and nearly one-half of all the paper produced in the world in 1939 was manufactured in the United States.

Some specialization of product has developed in various sections of the country. Newsprint production is centered largely in Maine, New York and Washington, while mills in Ohio, Pennsylvania, Massachusetts and Michigan specialize in book papers. Tissue paper is made largely in New York, Pennsylvania and Wisconsin, and the production of wrapping paper and paperboard is mainly concentrated in the Midwest and Southern States. Kraft types of paperboard are produced largely in the South while other types, especially those made wholly or in part from waste paper (such as folding and set-up boxboard), are produced in the North. Production on the west coast is predominantly of wrappings.

### Paperboard Problems

● Container supply for military and essential civilian needs was

UNITED STATES PAPER PRODUCTION, IMPORTS, EXPORTS, AND CONSUMPTION  
 (Quantities in Tons of 2,000 Pounds)  
 TOTAL—ALL GRADES

Year	Production	Imports	Exports	Consumption	
				Tons	Lbs. Capita
1899	2,167,593	—	—	2,167,593	57.9
1904	3,106,696	—	77,704	3,028,992	73.3
1909	4,121,495	55,962	74,764	4,102,693	90.5
1914	5,152,705	349,278	106,713	5,395,270	110.2
1919	5,966,076	707,548	420,540	6,253,084	119.1
1924	7,929,985	1,500,433	149,541	9,280,877	164.0
1925	9,001,742	1,567,121	152,351	10,416,512	181.4
1926	9,794,086	1,973,451	183,130	11,584,407	198.8
1927	10,002,070	2,107,344	184,226	11,925,188	201.8
1928	10,403,338	2,266,828	218,730	12,451,436	207.8
1929	11,140,235	2,533,603	262,383	13,411,455	220.7
1930	10,169,140	2,365,272	215,811	12,318,601	200.7
1931	9,381,840	2,136,079	170,891	11,347,028	182.8
1932	7,997,872	1,848,016	119,292	9,726,596	155.6
1933	9,190,017	1,852,420	126,854	10,915,583	173.6
1934	9,186,598	2,263,281	163,199	11,288,680	178.3
1935	10,479,095	2,456,998	178,370	12,757,723	200.1
1936	11,975,552	2,855,153	179,727	14,650,978	228.1
1937	12,837,003	3,435,222	232,361	16,039,864	248.2
1938	11,380,814	2,357,477	208,064	13,530,227	207.8
1939	13,509,642	2,702,952	266,079	15,946,515	243.4
1940	14,483,709	2,826,880	578,248	16,732,341	254.2
1941	17,762,365	3,120,213	491,166	20,391,412	309.0
1942	17,083,862	3,025,000	500,000	19,608,862	294.9
1943	17,035,688	3,000,000	500,000	19,560,688	288.5



## TOTAL PAPER PRODUCTION IN UNITED STATES

(Tons of 2,000 lbs.)

	1939	1940	1941	1942	1943	1944 (Estimate)
Newsprint .....	954,259	1,056,304	1,043,999	967,211	811,309	720,000
Book .....	1,534,591	1,655,423	2,025,891	1,704,029	1,592,878	1,398,000
Groundwood .....	540,342	550,453	642,676	610,168	585,673	538,000
Fine .....	723,302	735,753	950,014	1,055,475	1,020,601	854,000
Wrapping (Coarse) .....	2,238,993	2,500,818	2,778,441	2,713,738	2,501,637	2,702,000
Tissue .....	648,429	733,894	175,336	170,653	162,766	162,000
Sanitary .....			737,538	811,343	806,023	796,000
Absorbent .....	121,717	129,410	61,941	64,530	88,254	92,000
Building Papers .....	659,090	682,460	917,912	1,001,383	877,582	926,000
Other Paper .....	63,625	60,120	28,657	16,148	129	
Container Board .....	3,361,441	3,434,834	4,183,846	3,755,438	4,087,972	3,988,000
Folding Boxboard .....	1,359,961	1,416,452	1,841,916	1,711,795	2,015,640	2,156,000
Setup Boxboard .....	865,485	898,549	1,238,850	996,688	829,102	498,000
Tube Stock .....				164,785	307,308	336,000
Building Boards .....	114,505	179,443	761,480	1,052,054	1,063,851	920,000
Other Boards .....	324,102	449,796	373,868	288,424	284,963	714,000
<b>TOTAL</b> .....	<b>13,509,642</b>	<b>14,483,709</b>	<b>17,762,365</b>	<b>17,083,862</b>	<b>17,035,688</b>	<b>16,800,000</b>

Source: 1939-1943: Bureau of Census, U. S. Department of Commerce.

1944 Estimates: Industry Report March, 1944, War Production Board and Bureau of Foreign and Domestic Commerce.

rated this year by Donald Nelson, director the War Production Board, as one of the most serious problems facing the nation. The darkest outlook was for wood and paper shipping containers, according to Mr. Nelson.

American housewives are warned that they can expect a drastic reduction of store bags and wrapping paper, probably well over 50 per cent before this year is out. In relation to supplies before the war, one bag or wrap must do the work of three or four.

Paperboard production was greater in 1943 than in 1942 whereas other paper was less. With insistent and increasing army and navy demands for more and more paperboard, this type of paper was only slightly off the 1941 all-time record high.

Production schedules for the first quarter of 1944 allowed for a ratio of 53 per cent paperboard to 47 per cent of other kinds of paper. This was a complete reversal of a trend in late 1942 when 45 per cent board

was being produced.

Substantial cuts were made during 1943 and early 1944 in printing papers, fine papers, and certain other classes, while increases are allowed for special industrial papers, container boards, building papers, tube stock, and a few other grades. Use of newsprint, book paper, magazine and commercial paper use was cut about 25 per cent for Jan., 1944.

This production pattern was determined from statements of requirements by the claimant agencies, coup-

## PRODUCTION OF PAPER AND PAPER BOARD, BY REGION AND BY STATE: 1943-1942

(Tons of 2,000 pounds)

Region and State	1943	1942	Region and State	1943	1942
<b>Aggregate</b> .....	<b>17,035,688</b>	<b>17,083,862</b>	<b>Southern States</b> .....	<b>4,515,587</b>	<b>4,521,848</b>
<b>Northeastern States</b> .....	<b>5,786,554</b>	<b>5,864,335</b>	Delaware .....	33,870	38,308
Maine .....	1,104,672	1,125,185	Maryland .....	197,920	195,294
New Hampshire .....	200,060	198,929	Virginia .....	651,148	639,007
Massachusetts .....	624,282	598,815	West Virginia .....	22,939	24,028
Connecticut .....	240,050	219,678	North Carolina .....	250,922	242,664
New York .....	1,523,945	1,649,451	South Carolina .....	482,220	435,327
New Jersey .....	866,472	835,429	Florida .....	442,815	477,935
Pennsylvania .....	1,099,372	1,111,197	Tennessee .....	178,449	170,949
Other N. E. States .....	127,701	125,651	Alabama .....	271,217	310,405
<b>Central States</b> .....	<b>5,423,719</b>	<b>5,295,715</b>	Mississippi .....	350,841	347,893
Ohio .....	1,209,677	1,135,599	Louisiana .....	1,019,132	1,089,899
Indiana .....	328,074	304,396	Texas .....	136,550	142,523
Illinois .....	686,445	699,857	Other Southern States .....	477,564	407,616
Michigan .....	1,272,429	1,238,736	<b>Pacific States</b> .....	<b>1,309,828</b>	<b>1,401,964</b>
Wisconsin .....	1,238,074	1,239,033	Washington .....	598,704	665,402
Minnesota .....	504,111	496,685	Oregon .....	312,390	335,333
Iowa .....	64,987	61,357	California .....	398,734	401,229
Other Central States .....	119,922	120,052			

Source: Bureau of Census. Proportion estimated for the aggregate is 1.1 per cent; for the Southern States, 4.3 per cent, and for Louisiana, 17.9 per cent.

NOTE: To avoid disclosing operations of individual mills, data for

the following States are shown in combination only: Northeastern States—Vermont and Rhode Island; Central States—Missouri, Kansas, and Colorado; Southern States—District of Columbia, Georgia and Arkansas.



led with mill reports of proposed consumption of pulp in terms of major and end-use categories. Through increased use of waste fibrous materials and fillers and production of lighter weights of paper, mills were requested to produce maximum quantities from allocated wood pulp.

The fear is expressed in a Department of Commerce report that inadequate supplies of paperboard and paper may seriously dislocate the civilian economy to the extent that it might indirectly affect the successful prosecution of the war.

#### Decrease Predicted

● The government bureaus predict a downward slip in both paper and paperboard production this year owing to lack of materials and man-



#### WARTIME DEVELOPED PAPER

product on display by WPB in Washington is this E-con-o electric chick brooder, made by Anderson Box Co., 700 W. Morris St., Indianapolis, Ind. An electric bulb supplies heat to brood 50 to 150 day old chicks. Made of a cloth curtain, metal legs and a cord set, says NORB SCHAEFER, general manager of the box firm.

power. The prediction of the Department of Commerce is that there will be 16,800,000 tons produced in 1944.

The army, navy and government are expected to take what they want from available supply, leaving civilians with whatever is left. In fact, a warning was issued early this year that unless mills take up the government and military orders, it is possible that more strict regulations would be invoked. As a matter of fact, already this year, some mills have had pressure brought on them to change their products to meet the military needs. Before the year is out, some WPB officials have predicted that many mills may be making entirely different products than they are accustomed to—even if it takes changes in equipment.

### 45-Year Record (Selected Years)

#### United States Paper Production, Imports Exports, and Consumption

(Quantities in Tons of 2,000 Pounds)

Year—	Production	Imports	Exports	Consumption		Year—	Production	Imports	Exports	Consumption	
				Tons	Lbs., Capita					Tons	Lbs., Capita
Newsprint											
1899.....	569,212	-----	-----	569,212	15.2	1929.....	1,409,169	2,422,700	18,695	3,813,174	62.8
1904.....	912,822	-----	52,159	860,663	20.8	1934.....	989,705	2,209,698	23,405	3,175,998	50.2
1909.....	1,168,098	-----	48,740	1,119,358	24.7	1939.....	954,259	2,615,129	13,495	3,555,893	54.2
1914.....	1,313,284	278,403	44,483	1,547,204	31.6	1941.....	1,043,999	2,982,375	70,265	3,956,109	59.9
1919.....	1,323,880	627,734	110,268	1,841,346	35.1	1942.....	967,211	2,900,000	77,000	3,790,211	57.0
1924.....	1,481,425	1,357,233	17,159	2,821,499	49.8	1943.....	811,309	2,900,000	77,000	3,634,309	53.6
Books											
1899.....	304,459	-----	-----	304,459	8.1	1929.....	1,497,912	3,406	27,567	1,473,751	23.9
1904.....	454,337	-----	-----	454,337	11.0	1934.....	1,055,247	4,730	12,066	1,047,911	16.6
1909.....	582,114	1,104	-----	583,218	12.9	1939.....	1,546,930	13,749	22,463	1,538,216	23.4
1914.....	795,958	6,489	14,301	788,146	16.1	1941.....	2,025,891	28,506	51,752	2,002,645	30.4
1919.....	828,641	146	76,691	752,096	14.3	1942.....	1,704,029	28,000	50,000	1,682,029	25.3
1924.....	1,050,000	14,328	10,970	1,053,358	18.6	1943.....	1,592,878	28,000	50,000	1,570,878	23.2
Fine Papers											
1899.....	131,456	-----	-----	131,456	3.5	1929.....	635,662	1,613	16,660	620,615	10.2
1904.....	168,982	-----	-----	168,982	4.1	1934.....	434,870	879	10,263	425,486	6.7
1909.....	215,791	-----	-----	215,791	4.7	1939.....	613,995	573	20,498	594,070	9.0
1914.....	269,407	-----	3,369	266,038	5.4	1941.....	950,014	159	46,783	903,390	13.7
1919.....	347,346	-----	37,680	309,666	5.9	1942.....	1,055,475	300	47,000	1,008,775	15.2
1924.....	422,000	1,373	4,040	419,333	7.4	1943.....	1,020,601	300	47,000	973,901	14.4
Wrapping and Bag											
1899.....	535,252	-----	-----	535,252	14.3	1929.....	1,605,783	9,344	29,425	1,585,702	26.1
1904.....	644,291	-----	-----	644,291	15.6	1934.....	1,356,115	5,124	32,160	1,329,079	21.0
1909.....	763,067	-----	-----	763,067	16.8	1939.....	2,238,993	14,954	41,014	2,212,933	33.8
1914.....	911,029	18,258	7,067	922,220	18.8	1941.....	2,778,441	4,490	90,357	2,692,574	40.8
1919.....	858,464	2,401	49,408	811,457	15.5	1942.....	2,713,738	3,800	96,000	2,621,538	39.4
1924.....	1,235,000	25,540	18,520	1,242,020	21.9	1943.....	2,501,637	3,800	96,000	2,409,437	35.5
Tissue											
1899.....	28,406	-----	-----	28,406	0.7	1929.....	387,811	10,527	7,725	390,613	6.4
1904.....	43,925	-----	-----	43,925	1.1	1934.....	397,196	8,687	7,281	398,602	6.3
1909.....	77,745	-----	-----	77,745	1.7	1939.....	665,723	9,347	14,695	660,375	10.1
1914.....	115,401	-----	-----	115,401	2.4	1941.....	912,874	2,661	26,500	889,035	13.5
1919.....	190,561	245	-----	190,806	3.6	1942.....	981,996	2,900	34,500	950,396	14.3
1924.....	242,000	6,795	4,368	244,427	4.3	1943.....	968,789	2,900	34,500	937,169	13.8
Paperboard											
1899.....	394,111	-----	-----	394,111	10.5	1929.....	4,451,187	42,351	94,374	4,399,164	72.4
1904.....	559,711	-----	-----	559,711	13.6	1934.....	4,073,261	20,936	51,159	4,043,038	63.9
1909.....	883,088	-----	-----	883,088	19.5	1939.....	6,104,968	28,610	103,384	6,030,194	92.1
1914.....	1,291,805	-----	-----	1,291,805	26.4	1941.....	8,399,960	36,882	141,250	8,293,592	125.7
1919.....	1,867,064	44,461	61,890	1,849,635	35.2	1942.....	7,969,184	36,000	145,000	7,860,184	118.2
1924.....	2,850,000	55,275	48,661	2,856,614	25.5	1943.....	8,588,836	36,000	145,000	8,479,836	125.1



the De.  
at there  
produced

ernment  
ey want  
g civil-  
In fact,  
his year  
govern-  
is pos-  
ulations  
tter of  
e mills  
n them  
o meet  
ne year  
s have  
may be  
products  
—even  
nt.

tion  
Capita

62.8  
50.2  
54.2  
59.9  
57.0  
53.6

23.9  
16.6  
23.4  
30.4  
25.3  
23.2

10.2  
6.7  
9.0  
13.7  
15.2  
14.4

26.1  
21.0  
33.8  
40.8  
39.4  
35.5

6.4  
6.3  
0.1  
3.5  
4.3  
3.8

2.4  
3.9  
2.1  
5.7  
8.2  
5.1

Mills now are required to produce in full the scheduled amounts of those types of paper and board having preferred production status, even at the expense of production of other types of paper products. Specific allocations of wood pulp must be utilized in the manufacture of papers and paperboards listed in Direction 1 to General Preference Order M-93, issued April 4, 1944.

The grades of paper and board given preferred production status include: all grades of container board; several types of photographic, blue print and reproduction papers; postal cards; target paper; carbonizing and container tissue; rag map and chart paper; wet strength map paper; greaseproof, glassine and vegetable parchment; unbleached kraft wrapping paper; asphalt-impregnated stock, multi-wall bag and sack papers; twisting and spinning papers and twisting tissue; hot and cold drink cup stock; cable paper and vulcanizing stock; industrial towels and napkins; sanitary and toilet tissue; fruit and vegetable wrapping tissue; milk bottle stock, milk bottle hood and lip cover stock, and certain industrial papers.

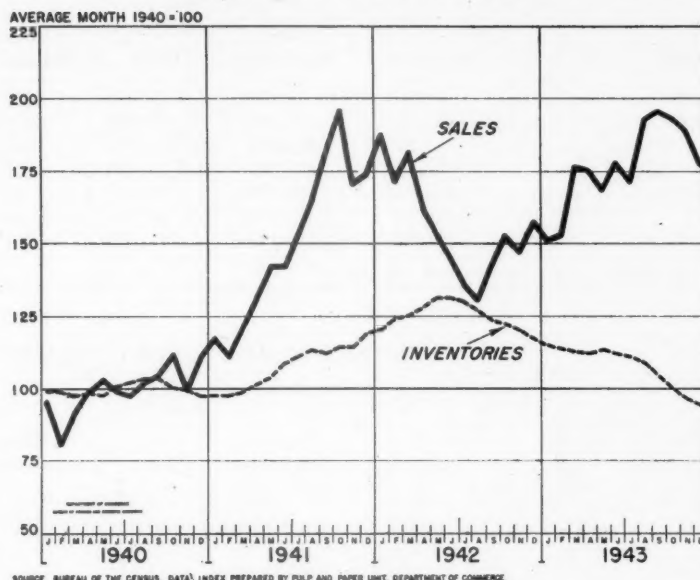
#### Waste Paper

Waste paper collections had improved early this year but Rex Hovey, head of the WPB Paper Division, admitted at that time that 66 per cent of paper production would have to be recovered by waste collectors in order to maintain present production. This was a seemingly impossible feat for the boy scouts, the newspaper drives, etc.

American industry was reported by the WPB as already doing a commendable job in salvaging of wastepaper, and one almost equal to what households are accomplishing. WPB estimated that of all wastepaper salvaged in this country, excluding that obtained from government agencies, approximately 50% is turned in by manufacturing concerns, business houses, stores and other commercial organizations. Wastepaper receipts at mills last year totaled 6,060,000 tons. Goal for 1944 is 8,000,000 tons.

Total production of wrapping paper and bag paper in the second quarter of '44 was estimated at 11 per cent less than the first quarter and approximately 23% less than was manufactured in the same pe-

### INDEX OF WHOLESALERS' SALES AND INVENTORIES OF PAPER AND PAPER PRODUCTS



SOURCE: BUREAU OF THE CENSUS. DATA INDEX PREPARED BY PULP AND PAPER UNIT, DEPARTMENT OF COMMERCE

#### UNITED STATES

##### Paperboard—Operation, Production, Orders (.012 of an inch or more in thickness)

—Operation—(Inch hours*)— (Based on last dryer width)			—Production—(Short tons)—			New orders (Short tons)
Rated Capacity	Operated	Per Cent of Capacity	Rated Capacity	Output	Per Cent of Capacity	
1943				7,532,127		92 7,900,526
1942	205,903,230	170,977,574	83.0	7,037,386	5,800,456	82.4 5,696,401
1941	208,851,139	181,648,073	87.0	6,830,102	6,142,290	89.9 6,536,701
1940	222,951,990	159,269,644	71.4	7,079,959	5,175,107	73.1 5,112,272
1939	224,509,968	156,009,731	69.5	6,842,087	4,882,636	71.4 4,984,774
1938	201,659,468	125,473,369	62.2	6,188,954	3,816,502	61.7 3,837,460
1937	193,449,553	143,747,844	74.3	5,648,035	4,293,717	76.0 4,163,060
1936	176,217,757	129,343,411	73.4	5,001,147	3,658,871	73.2 3,720,996
1935	178,529,564	119,579,631	67.0	4,861,628	2,294,055	67.8 3,281,525
1934	176,800,951	105,201,235	59.5	4,767,029	2,839,705	59.6 2,807,470
1933	165,594,126	105,986,270	64.0	4,619,730	2,912,374	63.0 2,913,370
1932	138,115,824	75,979,629	55.0	3,904,824	2,152,045	55.1 2,148,991
1931	137,218,968	91,894,961	67.0	3,879,836	2,556,851	65.9 2,527,024
1930	139,179,840	96,843,592	69.6	3,917,436	2,699,595	68.9 2,685,373

Source: U. S. Department of Commerce.

\*Rated (24-hour) capacity data for paperboard machines in inch hours in this report are based on last dryer widths whereas those shown in the reports for 1932 and earlier years were based on maximum trim width. The capacity data vary according to the normal number of working days in each month.

#### UNITED STATES PAPERBOARD PRODUCTION — ORDERS 1943

(.012 of an inch or more in thickness)

	Output	Percent of Capacity	New Orders Short Tons	Unfilled Orders end of Month Short Tons
January	576,376	86	629,900	413,084
February	568,637	88	616,167	454,220
March	670,257	94	723,296	511,220
April	650,448	94	686,179	525,287
May	655,261	96	690,364	545,673
June	627,761	94	672,371	580,683
July	612,223	89	644,349	571,705
August	649,082	96	662,252	570,859
September	637,516	94	647,413	579,800
October	639,262	94	656,506	587,324
November	635,118	93	646,473	578,434
December	610,186	87	625,256	589,815
Total Year 1943	7,532,127	92	7,900,526	

Source: U. S. Department of Commerce.



## PAPERBOARD PRODUCTION BY ZONES

1943

Short Tons

Zone.	Linters	Corr. Material	Chip	Folding Boxboard	Set-Up Boxboard	Other	Total
New England	74,800	29,900	17,300	190,400	61,400	87,700	461,500
Middle Atlantic	462,700	224,800	79,900	491,500	370,500	406,000	2,035,400
Lake States	554,100	385,000	176,100	797,200	114,600	541,100	2,568,100
South	1,192,700	277,200	25,900	72,500	24,500	160,200	1,753,000
Western	250,700	109,300	76,100	170,200	28,700	116,900	751,900
Total	2,353,000	1,026,200	375,300	1,721,800	599,700	1,311,900	*7,569,900

\*In addition Canadian imports were 16,800 tons.

Western Group includes all states west of the Mississippi River with the exception of Texas, which is included in the Southern Group.

## PAPERBOARD PRODUCTION BY ZONES

1942

Short Tons

Zone.	Linters	Corr. Material	Chips	Folding Boxboard	Set-Up Boxboard	Other	Total
New England	50,300	7,900	16,300	177,400	59,300	109,000	420,200
Middle Atlantic	438,100	170,600	89,300	443,500	365,200	378,700	1,885,300
Lake States	449,600	337,200	177,500	717,500	136,300	546,900	2,365,100
South	1,113,000	322,900	21,400	61,300	26,900	179,200	1,725,000
Western	219,900	92,200	106,000	136,700	25,100	119,100	699,000
Total	2,271,100	930,900*	410,500	1,536,400	612,800	1,332,900	7,094,600*

\*In addition, Canadian Imports of Corrugated Materials were 42,100 tons.

Western Group includes all states west of Mississippi River with the exception of Texas, which is included in the Southern Group.

Source: National Paperboard Association.

## PAPERBOARD MILL CENSUS

In Tons

## CONTAINER BOARDS

GRADES	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
Liners - Jute	737,300	888,700	1,029,300	1,047,600	674,900	794,300	796,400	1,073,900	819,800	1,108,100
Liners-Kraft Cyl	232,900	262,600	285,900	290,800	238,900	279,800	246,200	285,600	276,700	173,900
Kraft Four.	257,700	289,600	389,600	461,600	638,200	803,800	923,300	1,201,400	1,174,600	1,252,900
Total Kraft	490,600	552,200	675,500	752,400	877,100	1,083,600	1,169,500	1,487,000	1,451,300	1,426,800
Total Liners	1,227,900	1,440,900	1,704,800	1,800,000	1,552,000	1,877,900	1,965,900	2,560,900	2,271,100	2,534,900
Chip-Corrugating	66,100	70,200	97,700	96,200	76,500	75,900	75,500	77,800	72,200	89,000
Solid Fibre	209,100	210,700	237,000	246,800	177,800	208,600	202,800	273,100	338,300	286,400
Total Chip	275,200	280,900	334,700	343,000	254,300	284,500	278,300	350,900	410,500	375,400
.009 Straw, Etc.	394,000	472,800	556,800	589,200	461,400	574,900	611,400	783,600	621,900	848,900
.009 Kraft	89,000	114,400	141,900	148,300	212,100	263,000	292,000	348,300	309,000	177,500
Total .009	483,000	587,200	698,700	737,500	673,500	837,900	903,400	1,131,900	930,900	1,026,200
TOTAL	1,986,100	2,309,000	2,738,200	2,880,500	2,479,800	3,000,300	3,147,600	4,043,700	3,612,500	3,936,500

## BOXBOARDS

Folding Box	926,800	1,034,600	1,198,400	1,223,800	1,150,400	1,370,700	1,398,500	1,732,100	1,536,400	1,721,800
Set-up Box	506,000	531,100	587,700	570,000	518,800	585,700	613,200	731,200	612,800	599,700
Total	1,432,800	1,565,700	1,786,100	1,793,800	1,669,200	1,956,400	2,011,700	2,463,300	2,149,200	2,321,500
Other	510,700	642,800	770,900	839,200	753,600	947,600	1,115,100	1,331,600	1,332,900	1,311,900
TOTAL	1,943,500	2,208,500	2,557,000	2,633,000	2,422,800	2,904,000	3,126,800	3,794,900	3,482,100	3,633,400

## SUMMARY

JUTE, Chip, Boxboard										
Straw, Etc.	3,301,900	3,789,300	4,416,800	4,534,700	3,740,900	4,430,800	4,589,300	5,826,600	5,127,100	5,767,600
KRAFT, Liner, .009 Etc.	627,700	728,200	878,400	978,800	1,161,700	1,473,500	1,685,100	2,012,000	1,967,500	1,802,300
TOTAL ALL GRADES	3,929,600	4,517,500	5,295,200	5,513,500	4,902,600	5,904,300	6,274,400	7,838,600	7,094,600	7,569,900

Issued: March 15, 1944.

\* In addition, Canadian Imports were 106,200 42,100 16,800

NATIONAL PAPERBOARD ASSOCIATION



riod last year. This shortage is due to necessity of making great quantities of shipping containers, water-proof paper and multiwall bags for the armed forces. In view of wartime demands, however, it is estimated that only about one-half of second-quarter quantity will be available for civilian use.

Shortly before publication of this issue, about 10,000 executives from industries concerned with packaging gathered at a conference in Chicago, sponsored by the American Management Association to hear how to conserve paper and other scarce materials. They heard government officials and prominent container officials warn that the situation is so acute that many civilian suppliers will have to be content with second-hand shipping cartons. Fancy packages, designed to stimulate sales, are out for the duration, they were told.

Previously WPB had required a reserve of 25 per cent of each mill's production but the remainder was largely uncontrolled. Under a recent new order, WPB may direct mills to produce specified types of board and ship it to specified persons. All users of more than 2½ tons of board each quarter must obtain authorization from WPB before accepting delivery, with authorizations to be issued on a monthly basis.

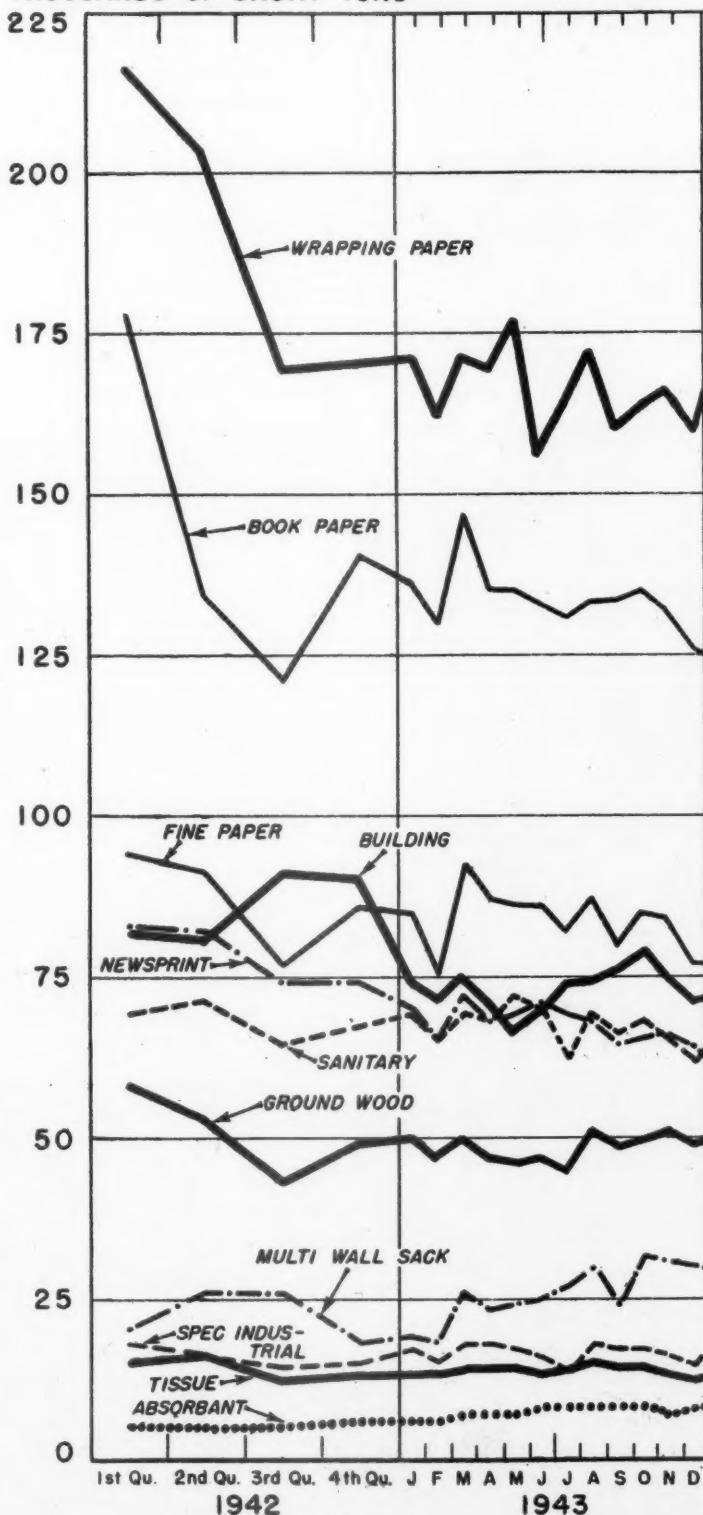
### The Sales Situation

The following comment on the current and probable future paper situation appeared in the News Bulletin of Strathmore Paper Company which is sent to merchants and their salesmen:

"Lst year was a good one for paper merchants and mills. In general this year to date has been the same. Yet problems are multiplying. The mill inventories which served as a cushion in 1943 are largely gone. Paper merchants' inventories are lower and being reduced further month by month. But some consumer inventories are still sizable, due to advance buying. Such inventories may help relieve today's situation since these companies may not be in the market for paper until present supplies are used.

"Fortunately the reduction in weights of paper allow present pulp and other materials to be made into the maximum area of paper. It

## UNITED STATES PAPER PRODUCTION BY GRADES THOUSANDS OF SHORT TONS



SOURCE: - BUREAU OF THE CENSUS



seems likely that there will be paper for essential uses but economy will be the watchword. And based on all apparent conditions at the present time, it can be assumed that demand for paper will exceed supply during 1944."

A long-term estimate on paper and board requirements relative to pulpwood and waste fibrous needs

would, of course, be subject to a number of uncertain factors. For example, will the demand for paperboard packages be eased by gradual return to metal? If so, this will be very small in relation to total requirements for paperboard. Will Swedish pulp be cleared for early shipment to the United States? At

the present time there is little likelihood of this. Will the European war itself end before the close of the year? Such contingencies cannot and should not be counted upon in planning to meet the requisites of the war program. Victory must not be delayed because of lack of enough paper or shipping containers!

## Pulp & Paper Industry Is Interested In Work of U. S. Laboratory at Madison

● There is a Pulp and Paper Division in the U. S. Forest Products Laboratory at Madison, Wis., operated by the government in collaboration with the University of Wisconsin. For this reason, the work and the organization of the laboratory is of interest to this industry.

In fact, leaders in woods industries on the coast have argued that there is far more need of a laboratory of this kind on the Pacific Coast than anywhere else on the continent. Their contention is there is more need of studying closer utilization of wood in the big timber belt

of the west coast—in the Redwood region as well as the Douglas fir and the big Western hemlock areas—because there is more wood left on the ground after logging and otherwise unused in products in this region.

Finding new uses and closer utilization of wood is, of course, the primary purpose of the Madison laboratory.

### Many Changes Foreseen

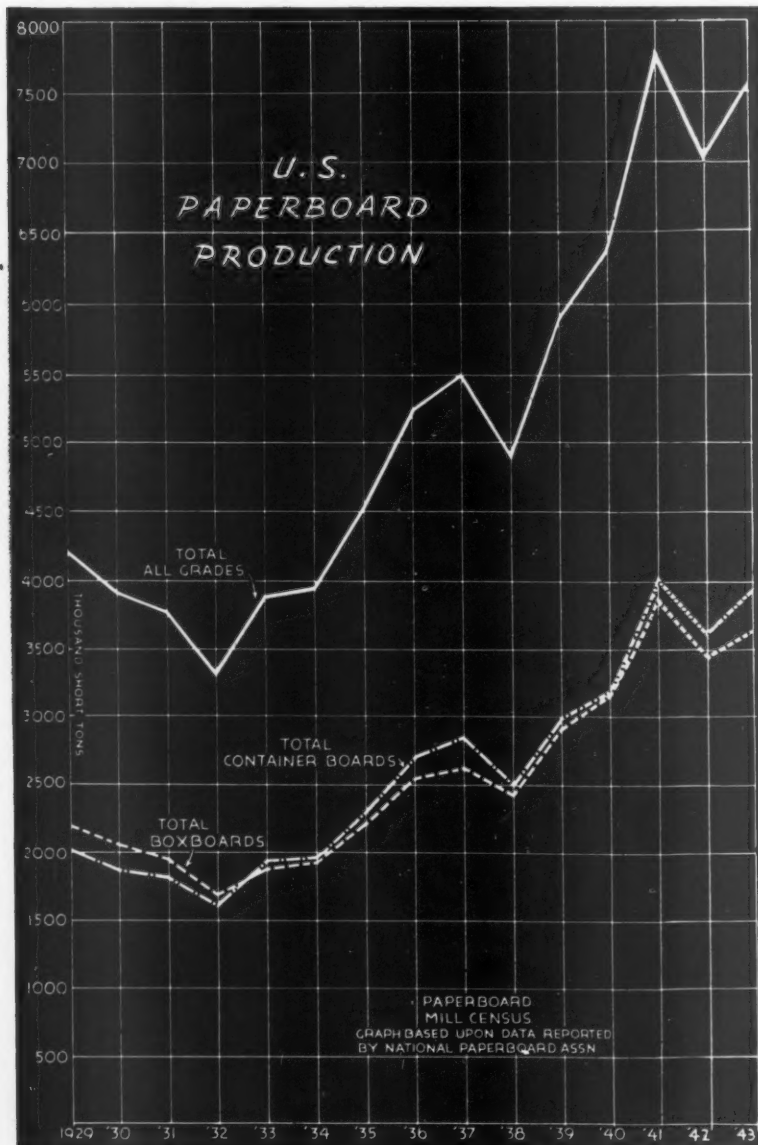
● By the time the war ends, those in the forest industries—all the way from lumbermen to wood chemists—may scarcely recognize their own baby. The conflict has posed so many new problems that research, in both private and public laboratories, into the properties of wood and how it may be adapted to war needs has reached new proportions.

The center of this activity—and actually one of the busiest arsenals of our democracy—is the Madison laboratory. As recently as 1932, the laboratory occupied its magnificent, new, five-story building, which is beyond comparison with any similar laboratory in the world. By 1941, 185 scientists and technicians were on its staff. Now, close to 700 labor there, and nearly 99 per cent of their present activities are tied directly with the war. . . .

Based upon research at Madison, at least 30 aircraft parts, made of laminated paper plastic, are now in experimental, or full, production. This product is stronger for the purpose than any similar material, and is equal, weight for weight, to aluminum. . . .

Chemical use of wood-waste has been a major subject of research. For example, the laboratory has operated an experimental wood-sugar pilot plant at Marquette, Michigan, as result of which a commercial plant is now definitely projected in Oregon. These tests were based on the Scholler-Tornesch process, a German development, which in extensive industrial application in Europe has produced as much as 1,000 pounds of wood-sugar from a ton of dry sawdust. This may be fermented into 50-60 gallons of ethyl alcohol, leaving a residue of some 600 pounds of lignin.

Dr. J. A. Hall, principal biochemist of the Forest Service, has estimated that 150,000,000 gallons of such alcohol can be in production in the United States within less than a year, assuming permission to construct necessary plants. It would require 60,000,000 bushels of wheat to produce as much. This, Dr. Hall has pointed out, would use only the most readily available source of mill waste on the West Coast and in the South, actually only a drop in the bucket





likely  
European  
use of  
cannot  
soon in  
ates of  
not be  
enough

compared with the potential of complete waste utilization.

Perhaps the most significant chemical research at Madison has to do with lignin, that fourth of wood the complexities of which have intrigued scientists for many years. In the wood-sugar process it is left as a residue. It has high efficiency as a fuel, burning with a caloric value twice that of wood, and equal to anthracite. Yet, its value as a fuel is considered incidental. It is beginning to find a market in other, more highly developed, fields. When its properties and composition are more fully understood, its mass use may write a new chapter in the history of forest industries.

A catalogue would be required to list all the war activities going on at Madison.

The laboratory has its sights set on the objective for which it was founded in 1910. That, briefly, is to discover wider and more efficient uses for wood. To those who fear that greater use of forest products may put too great a burden on our timber resources, the laboratory replies "wise timber use is the best timber conservation." It points out that, with complete use of waste, we can consume double the amount of wood we now consume, without cutting a single additional tree.

Something of the nature of the laboratory's activities can be gathered from its departments. Under the direction of Carlile P. Winslow, there are these divisions: wood preservation, headed by George M. Hunt; timber mechanics, L. J. Markwardt; timber physics, Rolf Thelen; industrial investigations, Carroll V. Sweet; pulp and paper, Gardner H. Chidester; derived products, Dr. Earl C. Sherrard; silvicultural relations, Arthur Koehler. This last has to do with the relation of growth conditions to the properties of wood.

To carry the chain of authority in the other direction, Mr. Winslow is responsible to George W. Trayer, chief of the division of forest products, who, in turn, is responsible to C. L. Forsling, assistant chief of the United States Forest Service in charge of research. Lyle F. Watts is chief of the Forest Service.

## Navy Completes Tests Of Paper Parachute

● The Navy Department has developed a paper cargo parachute and orders for its production are now being placed by the Bureau of Supplies and Accounts.

Such a parachute is expected to be especially useful in dropping supplies, as in cases where troops in combat areas are cut off from their lines of supply.

The new cargo parachute is made from specially creped kraft paper and has been in the process of development and testing for the last four months by the Paper Commodity section in the Stock division of the Bureau of Supplies and Accounts. The parachute will safely carry a load of 100 pounds when released from a plane flying at a speed of 180 miles per hour. It is 16 feet in diameter when open, and will withstand any kind of atmospheric condition, not being damaged by rain or other climatic factors.

To be used only for dropping supplies from the air, the paper parachute costs approximately one-fifth as much as the standard human parachute and will effect a considerable saving in nylon and other fabrics used in ordinary escape parachutes.

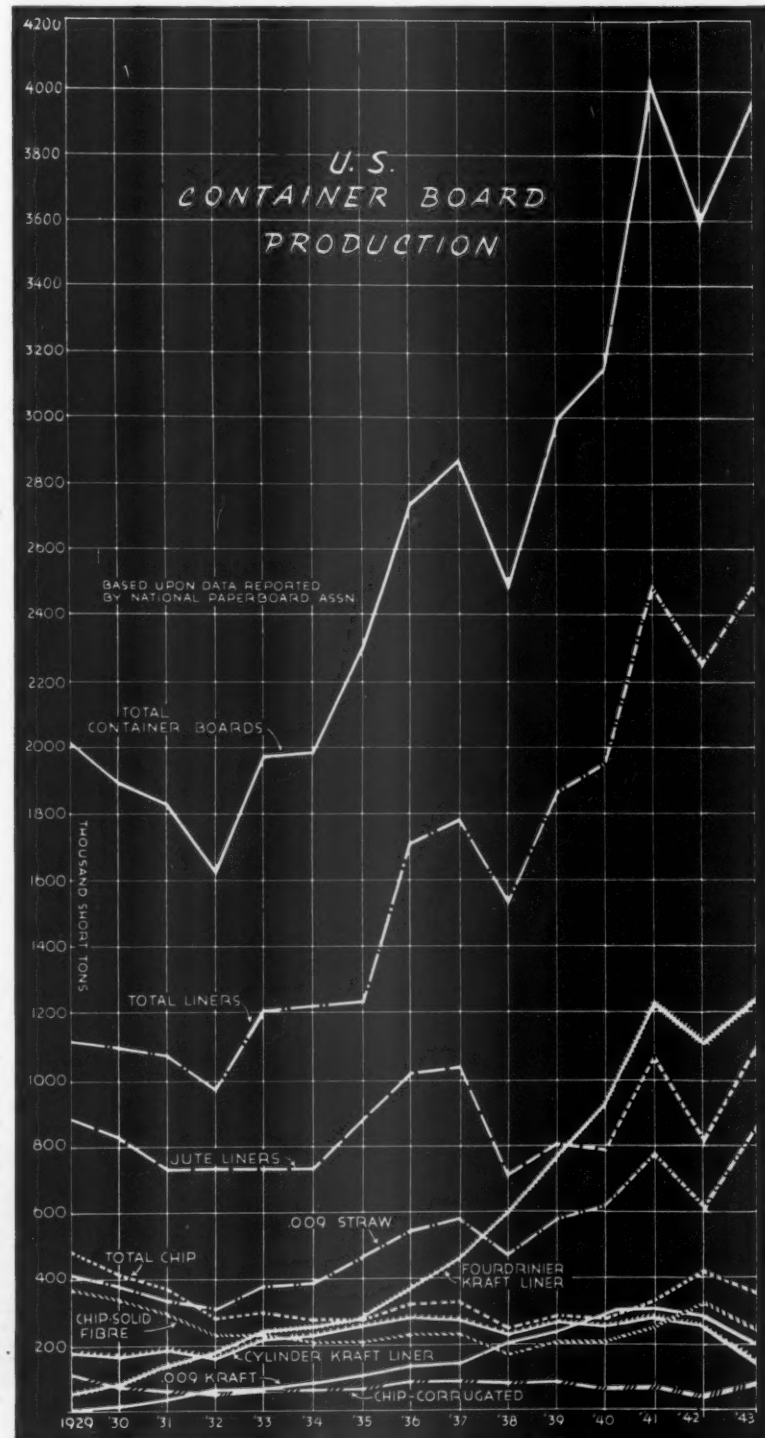
## Many Paper Products Banned In Germany

Manufacture of small, so-called "economy envelopes" has been authorized in Germany, as a means of utilizing all available machinery, says the German press.

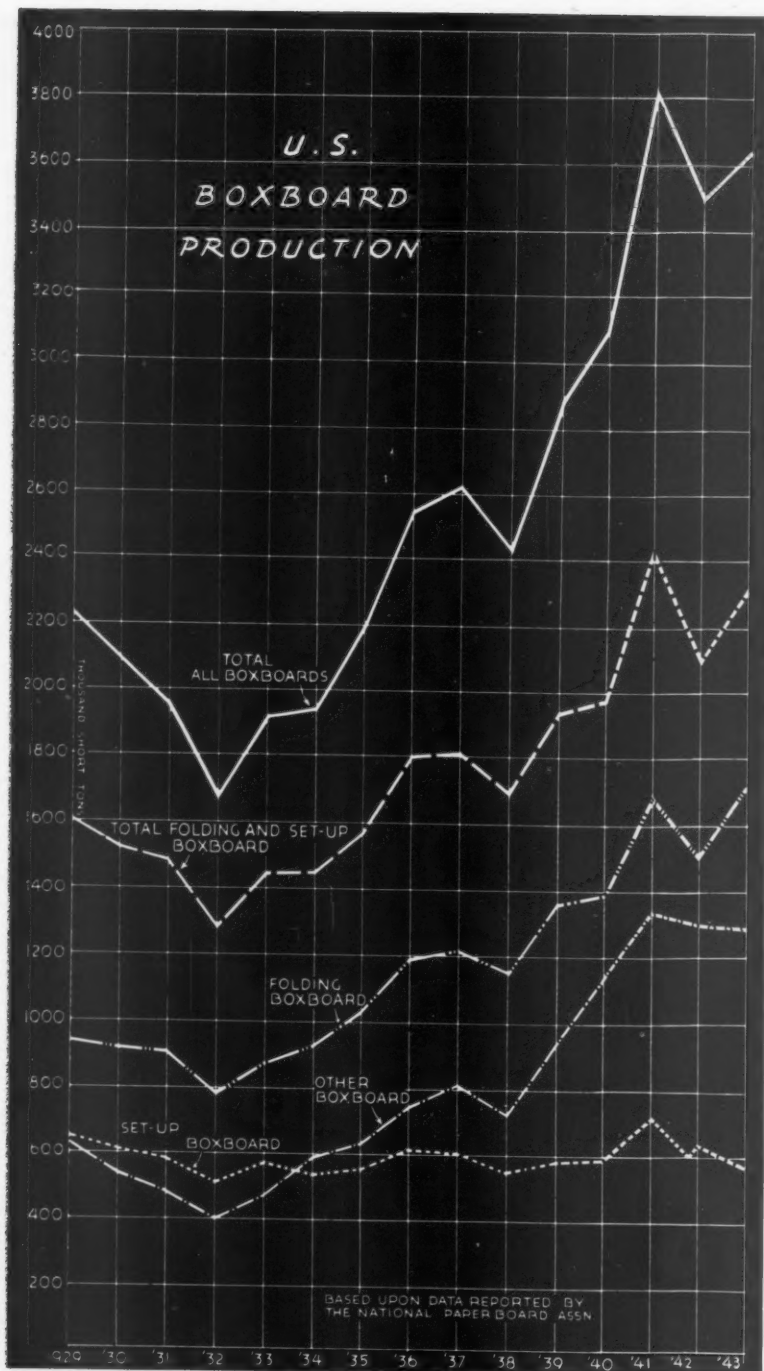
The list of prohibited paper manufactures now includes labels larger than 20 square centimeters, silver-bromide postal cards, bread wrappers, bookmarks, market bags, pocket calendars, paper

and pasteboard for lampshades, spoons (particularly ice-cream spoons), sewing boxes, separate wrappers for razor blades (except paper covers waxed or paraffined on one side), stage money, spiral notebooks, wall mottoes and other inscriptions and greeting cards.

In nearby Norway, newspapers and magazines have been restricted 50 per cent in newsprint consumption and about 80 have ceased publication. Newspapers in Denmark were cut 15 per cent and more drastic curtailment was expected.







### Papermaking In China

A factory in Ninghsia province, China, is producing 10,000 sheets of paper daily in primitive fashion, according to the Department of Commerce. Hemp is chopped by hand and ground on stone rollers turned by draft animals. Lime is added to the shredded fiber and the mixture steamed for twelve hours after which the mass is churned by barefoot persons. After it is again twice ground and churned by foot, sheets of the paper are pressed against walls to dry in the sun.

### Paper Used In England For Glider Parts

● Glider parts described as incredibly strong and weatherproof are being made of paper in England. The parts are produced by nimble-fingered girls, who formerly made such papier mache products as imitation food for the film industry. Alternate layers of vari-colored paper are pasted together in moulds, trimmed and then sprayed with cellulose solution. Colored paper is alternated so operators can determine at a glance if each coating is complete and in place.

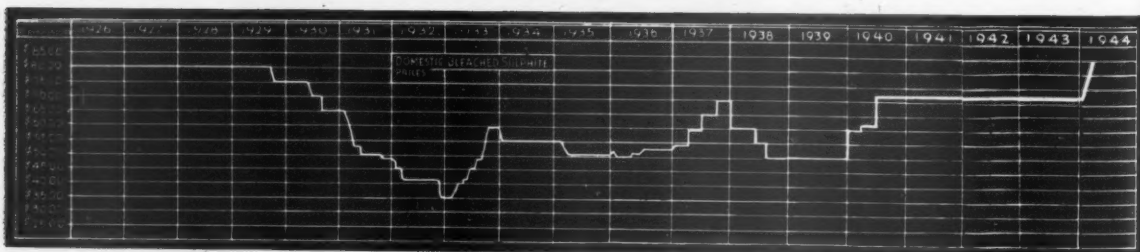
### Cellophane Is Now Used In Surgery

● An important new use has been found for cellophane. Captain W. H. Michael, commander of the United States Naval Hospital at Long Beach, Calif., says the paper is now being employed successfully to help wounded sailors recover the use of shattered arms and legs. Captain Michael said a treatment was developed by Lieut. Comdr. D. C. McKeever whereby the paper is applied to moving surfaces of affected bone joints, preventing the formation of scar tissue which would hinder movement and keeping the surfaces from adhering. — The Informant, Zellerbach Paper Co.

### WPB Publishes Salvage Manual

● The first comprehensive practical manual on industrial salvage ever prepared has just been published by the Technical Service Section, Industrial Salvage Branch, Salvage Division, War Production Board, and is now being distributed to industry.

The new book, entitled "Salvage Manual for Industry," contains 245 pages of systematically organized and classified information and data—most of it of a "how-to-do-it" nature. Price, 50 cents per copy, the manual is procurable through the Superintendent of Documents, Government Printing Office, Washington, D. C.



**FLUCTUATIONS** in U. S. bleached sulphite pulp prices from 1926 to 1944. First increase in prices in 3½ years was allowed by Office of Price Administration this year. See "Pulp Prices," page 46; also "OPA Unit," page 17.



# WOOD PULP: U. S.—Canada Production Declines, But Is Far Above Pre-War Totals

North American output is below the record peaks of close to 16,000,000 tons in both 1941 and 1942. But it is twice as much as was produced ten years ago. Closing of Pacific Coast mills proved a mistake. Extension of controls bring complete end use allocation system in the United States.

**D**ESPITE more than a twelve per cent drop in their total production in this past year, the United States and Canada have really gone to town in producing wood pulp in these war years.

Wood pulp has been important to the war in many ways, much of it being taken away from paper manufacturers to make smokeless powder in the United States to fire most of the ack-ack and machine guns, and in Canada to make cordite for the British army and navy. Much has gone to rayon manufacturers, whose products are so important to the war that their facilities have been substantially increased. Lend-lease and extensive war uses of paper also have demanded more pulp.

It is alarming to our war leaders to see pulp production fall off even slightly and the dangerous lowering of inventories is threatening the continued existence of some mills.

But taking a long picture of pulp production, the United States and Canada are revealed as producing more pulp now than they ever did in their history, except for 1941 and 1942 when together they hit a record peak of close to 16,000,000 tons. About two-thirds of this was produced in the United States. Just before and since those two exceptional years—in 1940 and again in 1943, their total production has been over 14,000,000 tons. In those years the United States' share was less

than two-thirds—down to 62 to 63 per cent with Canada holding its end up better.

Beginning in 1940, United States and Canada have produced about twice as much pulp annually as they did ten years ago. In 1933 the total was 7,250,000 tons with U. S. production only 1,250,000 tons greater than Canada's. In 1934 the total was 7,750,000 and the American portion about 4,200,000. Canada did not reach a production of 4,000,000 tons until 1936 and the United States was under 7,000,000 tons until it jumped to nearly 9,000,000 in 1940.

A slight variation will be noted in the figures in tables and charts

## UNITED STATES

Paper and Woodpulp Production and Consumption  
Consumption of Domestic and Imported Pulpwood and Total Pulpwood Consumption  
Specified Years, 1899-1943

Year—	PAPER		WOODPULP		CONSUMPTION OF PULPWOOD		
	Production (tons)	Consumption (tons)	Production (tons)	Consumption (tons)	Domestic (cords)	Imported (cords)	Total (cords)
1899	2,167,593	2,158,000	1,179,525	1,216,254	1,617,093	369,217	1,986,310
1904	3,106,696	3,049,824	1,921,768	2,091,006	2,477,099	573,618	3,050,717
1909	4,216,708	4,224,000	2,495,523	2,856,593	3,207,653	793,954	4,001,607
1914	5,270,047	5,496,164	2,893,150	3,556,377	3,641,063	829,700	4,470,763
1917	5,919,647	6,255,725	3,509,939	4,148,600	4,706,327	773,748	5,480,075
1918	6,051,523	6,387,066	3,313,861	3,869,746	4,506,276	744,518	5,250,794
1919	6,190,361	6,479,490	3,517,952	4,113,911	4,445,817	1,032,015	5,477,832
1920	7,334,614	7,846,827	3,821,704	4,696,035	5,014,513	1,099,559	6,114,072
1921	5,356,317	6,053,915	2,875,601	3,544,218	3,740,406	816,773	4,557,179
1922	7,017,800	8,007,088	3,521,644	4,756,105	4,498,808	1,050,034	5,548,842
1923	8,029,482	9,339,573	3,788,672	5,149,695	4,636,789	1,236,081	5,872,870
1924			3,723,266	5,216,265	4,720,191	1,047,891	5,768,082
1925	9,182,204	10,590,090	3,962,217	5,590,304	5,005,445	1,088,376	6,093,821
1926			4,394,766	6,096,279	5,489,517	1,276,490	6,766,007
1927	10,002,070	11,915,233	4,313,403	5,960,865	5,526,889	1,224,046	6,750,935
1928	10,403,338	12,447,841	4,510,800	6,239,641	5,750,689	1,409,411	7,160,100
1929	11,140,235	13,347,925	4,862,885	6,704,341	6,411,566	1,233,445	7,645,011
1930	10,169,140	12,314,819	4,630,308	6,463,185	6,089,852	1,105,672	7,195,524
1931	9,381,840	11,403,850	4,409,344	6,005,718	5,896,446	826,320	6,722,766
1932	7,997,872	9,733,764	3,760,267	5,083,446	4,891,424	741,699	5,633,123
1933	9,190,017	10,919,391	4,293,344	6,027,088	5,933,295	628,379	6,561,674
1934	9,186,266	11,185,682	4,281,428	5,969,633	5,822,681	973,978	6,796,659
1935	10,506,195	12,490,886	4,944,226	6,877,869	6,590,942	1,037,332	7,628,274
1936	11,670,000	14,546,046	5,695,219	7,420,829	7,506,156	1,209,760	8,715,916
1937	12,600,000	15,798,362	6,617,184	8,692,489	8,870,932	1,522,868	10,393,800
1938	11,327,000	13,488,300	5,933,060	7,975,000	7,900,053	1,293,938	9,193,991
1939	13,509,642	15,930,349	6,993,334	9,058,415	9,685,592	1,130,874	10,816,466
1940	14,483,709	16,620,632	8,851,740	9,724,643	12,564,180	1,435,820	13,742,958
1941	17,762,365	20,391,412	9,978,400	10,801,223	15,400,000	1,292,640†	16,692,640
1942	17,803,862	19,608,862	10,233,000	11,050,000	15,972,000	**	**
1943	17,035,688	19,560,688	9,070,157	10,515,743	15,000,000	1,718,000***	16,718,000

Source: Bureau of the Census, United States Forest Service and A. P. & P. A. Bureau Foreign and Domestic Commerce, U. S. Pulp Producers Association.

†Pulpwood requirement is a computed figure which represents the pulpwood required to manufacture the total paper consumption of a year.

†Available for nine months of 1941 only. Other 1941 figures estimated for 12 months.

\*\*Due to war measure, figures not available for 1942.

\*\*\*War Production Board figure, issued by U. S. Victory Pulpwood Campaign.



# UNITED STATES WOOD PULP PRODUCING CAPACITY BY REGIONS 1943

(In tons of 2,000 pounds)

Revised from table published last year. 1944 capacities present no important changes.

Grade—	New England	Middle Atlantic	Lake States	Pacific	South	Total
Sulphite:						
Bleached*	466,670	184,470	426,948	722,425	142,900	1,943,413
Unbleached	260,755	186,360	283,302	543,665	0	1,274,082
Total	727,425	370,830	710,250	1,266,090	142,900	3,217,495
Sulphate:						
Bleached	0	67,500	68,700	113,790	680,305	930,295
Unbleached	33,535	8,400	275,420	365,430	3,701,090	4,383,875
Total	33,535	75,900	344,120	479,220	4,381,395	5,314,170
Soda	144,300	167,989	55,872	11,440	124,110	503,711
Semi-Chemical	0	0	1,050	35,080	234,226	270,356
Groundwood	813,775	489,735	556,330	376,520	250,419	2,486,779
TOTAL	1,719,035	1,104,454	1,667,622	2,168,350	5,133,050	11,792,511

\*In addition to the bleached capacity shown above, the mills have facilities for bleaching 164,257 tons more sulphite pulp and 331,610 tons more sulphate pulp, which capacity at present is being used to produce unbleached grades and is therefore shown as unbleached.

Source: United States Pulp Producers Association.

in this section. This is because of a difference in source material and because some are preliminary estimates or later revisions.

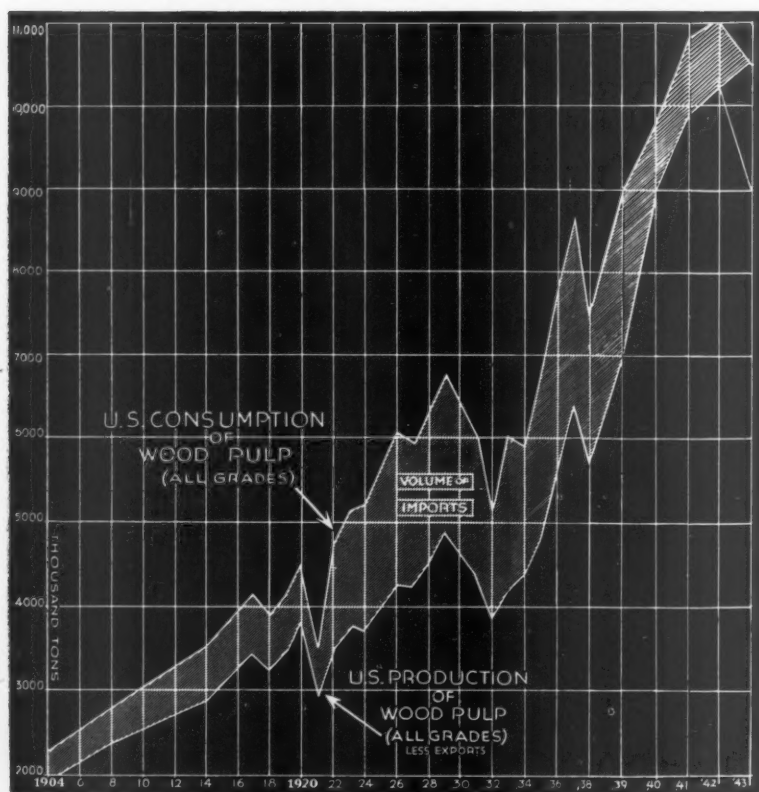
According to the latest revision of U. S. Pulp Producers Associ-

ation figures, wood pulp production and imports into the United States in 1943 totaled 10,049,862 tons in 1943, a drop of 12 per cent from the 1942 figure of 11,195,418.

Wood pulp production in the

United States alone—also according to revised recent figures—was 8,821,456 tons. This was 18 per cent off the 1942 figure.

The American Paper & Pulp Association report an inventory of only 428,000 tons of pulp was on hand in the United States at the end of 1943 as compared with 872,000 tons



## 1942

TOTAL WOOD PULP, ALL GRADES  
(In tons of 2,000 pounds)

CAPACITY 11,450,900	GROUNDWOOD 8,821,456 77%
CHEMICAL PULPS 2,629,444 23%	
CONSUMPTION 11,050,000	
CHEMICAL PULPS 8,945,000 81%	GROUNDWOOD 2,105,000 19%
PRODUCTION 10,233,000	
CHEMICAL PULPS 8,340,000 82%	GROUNDWOOD 1,893,000 18%
DOMESTIC SALES 1,718,000	GROUNDWOOD 41,000 2%
CHEMICAL PULPS 1,668,000 97%	
IMPORTS 1,800,000	GROUNDWOOD 118,000 7%
CHEMICAL PULPS 988,000 55%	
EXPORTS 363,000	CHEMICAL PULPS 363,000 100%



at the end of 1942. At the end of February, 1944, inventories were down to 388,000 tons.

All classes of wood pulp shared in the decline of the past year. In the United States unbleached sulphite dropped about 27 per cent or more than 300,000 tons under 1942. This was the greatest percentage loss. Decreases in sulphate and bleached sulphite were smallest, percentage-wise.

But owing to its prime war importance, the quantitative drop of more than 400,000 tons in unbleached sulphate pulp—though only about eleven per cent—was a serious development. The United States went into 1944 with unbleached sulphate as the most critical kind

of pulp, needed principally for overseas packaging, and, therefore, two of the happiest events of this year were the reopening of the St. Regis kraft mill at Tacoma, Wash., and the opening of a new kraft industry by the Southland Company in Lufkin, Texas.

Bleached sulphate production fell over only about five per cent and bleached sulphite less than ten per cent and in both cases the quantities were comparatively much smaller than in unbleached sulphite and sulphate.

#### Pacific Coast Pulp

● On the Pacific Coast, the pulp production fell off considerably from 1942 figures. The War Production Board's closing of three

mills on the Puget Sound in late 1942—the Rayonier mill in Tacoma, which was later sold and dismantled; the St. Regis mill, which was unable to reopen again until late March of this year, and the Scott subsidiary at Anacortes, which got going again last September—was a serious blow—New officials in WPB today readily say the closing was a grievous mistake. In the Pacific Coast states, pulp production fell from 1,993,995 tons to 1,556,213 tons. These mills produced 20 per cent of the nation's pulp in 1941 but only 17 per cent in 1943.

However, the west continued as the greatest producer of sulphite pulp. The far western states produced 41 per cent of the nation's supply in

### 1943

#### TOTAL WOOD PULP, ALL GRADES

(IN TONS OF 2,000 POUNDS)

CAPACITY 11,792,511	
CHEMICAL PULPS 9,305,732 79%	GROUNDWOOD 2,486,779 21%
CONSUMPTION 10,515,743	
CHEMICAL PULPS 8,562,315 81%	GROUNDWOOD 1,953,428 19%
NEW SUPPLY 10,071,466	
CHEMICAL PULPS 8,133,038 81%	GROUNDWOOD 1,938,428 19%
PRODUCTION 9,080,000	
CHEMICAL PULPS 7,359,152 81%	GROUNDWOOD 1,720,848 19%
CHEMICAL PULPS 1,265,616 96% DOMESTIC SALES 1,314,616	
IMPORTS 1,252,292	
CHEMICAL PULPS 1,034,422 83%	GROUNDWOOD 217,870 17%
CHEMICAL PULPS 260,536 EXPORTS 260,826	
GROUNDWOOD 290	

#### TOTAL SULPHITE PULP

(IN TONS OF 2,000 POUNDS)

CONSUMPTION 3,390,791	
BLEACHED 1,962,471 58%	UNBLEACHED 1,428,320 42%
CAPACITY 3,217,495	
BLEACHED 1,943,413 60%	UNBLEACHED 1,274,082 40%
NEW SUPPLY 3,155,779	
BLEACHED 1,859,655 59%	UNBLEACHED 1,295,924 41%
PRODUCTION 2,445,451	
BLEACHED 1,557,729 64%	UNBLEACHED 887,722 36%
DOMESTIC SALES 906,640	
BLEACHED 710,340 78%	UNBLEACHED 196,300 22%
IMPORTS 842,005	
BLEACHED 361,708 43%	UNBLEACHED 480,297 57%
EXPORTS 131,677	
BLEACHED 59,592 45%	UNBLEACHED 72,095 55%

(By U. S. Pulp Producers Association. These are preliminary estimates, only slightly revised at later date.)



1943

## BLEACHED SULPHITE PULP

(IN TONS OF 2,000 POUNDS)

PAPER GRADES 1,430,390 73%	CONSUMPTION 1,962,471 CAPACITY* 1,943,413	DISSOLVING 532,081 27%
PAPER GRADES 1,365,171 73%	NEW SUPPLY 1,859,855	DISSOLVING 494,684 27%
PAPER GRADES 1,187,998 76%	PRODUCTION 1,557,729	DISSOLVING 369,731 24%
PAPER GRADES 355,493 50%	DOMESTIC SALES 710,340	DISSOLVING 354,847 50%
PAPER GRADES 220,708 61%	IMPORTS 361,708	DISSOLVING 141,000 39%
PAPER GRADES 43,535 73%	EXPORTS 59,582	DISSOLVING 16,047 27%

\*164,257 Tons additional bleaching capacity utilized for Unbleached Sulphite

## UNBLEACHED SULPHITE PULP

(IN TONS OF 2,000 POUNDS)

CONSUMPTION 1,428,320
NEW SUPPLY 1,295,924
CAPACITY 1,274,082
PRODUCTION 887,722
IMPORTS 480,297
DOMESTIC SALES 196,300
EXPORTS 72,095

(By U. S. Pulp Producers Association. These are preliminary estimates, only slightly revised at later date.)

1943 with 36½ per cent in 1941. Almost every large mill or important mill in the east making sulphite products uses western pulp from British Columbia, Washington or Oregon. Pacific Coast pulp is very popular and has had important influence in the eastern markets. It has been quite a few years since these westerners said they would make as good pulp as the Swedes and such great progress has been made that there is no prospect now of any great degression.

However, nationally sulphate is expected to show the greatest future expansion because of new bleaching processes and new uses for sulphate products. The south, which has been the great home of this indus-

try, was producing 46 per cent of the nation's total output in 1943. Now there is prospect for more production of sulphate in Washington state, British Columbia and Ontario.

#### Allocations

● The year 1943 brought considerable extension of government controls over pulp production and use. At the outset of the year, the U. S. government abandoned a two-months ban on shipments of Pacific Coast paper pulp to east and middle western mills.

On May 5, 1943, all pulp producers were ordered to withhold 20 per cent of their monthly production thereafter and deliver it only as ordered by the WPB. But by

the end of 1943 complete end use control of all the wood pulp produced in the United States was invoked. This was the ultimate extension of M-93, the wood pulp allocation order which had gone into effect in May, 1942.

How these allocations have worked out in the first two periods of this year is shown in a table appearing with this article. The essentiality of the end product is the prime determining factor and prospects are this factor is going to be stressed more and more through this year and probably until the war ends.

#### Pulp Prices

● For the first time in three and one-half years, prices on four ma-



por wood pulp grades were raised throughout the United States and for pulp coming in from Canada on Feb. 14, 1944. This action was taken as an emergency measure to maintain production and raised prices from \$2 to \$10 a ton on bleached and unbleached sulphite, groundwood and soda. Ceilings had been established in April, 1942, at levels the producers had voluntarily maintained since July, 1940.

It was estimated producers would receive an additional \$12,500,000 annually—of course, before taxation—which amounted to an 11.7 per cent increase over previous ceilings.

The Pacific Coast pulp had been left out in the original program for the pulp price increases and it was

through pressure exerted by Washington state congressmen that the western pulp finally was included. The price increases were urgently needed because many eastern mills were not meeting costs. Even with the increases, most of these mills were still being subsidized. Since all wood pulp is allocated, it was determined that the increases had to be over-all and nationwide for those grades. If west coast pulp was consumed in the west, area prices might have been justified but, since it is largely a market pulp, the original OPA plan—which very nearly went through—would have been unfair discrimination.

With 56 per cent of the market pulp coming from Canada, it was the Canadians—outside the borders

of the United States—who were able to exert pressure and force the OPA to up the prices.

Said the OPA: "One effect of the increase in ceiling prices is to reduce the aggregate amount of subsidy payments which would otherwise be required in the immediate future. The price increases, as such, however, will not necessarily lead to a reduction in the aggregate amount of subsidy payments as required in 1944. Certain limits to amounts of individual subsidy payments may need to be modified."

Wood pulp production in the United States is running a little larger this year than last year, according to data compiled and issued

# 1943

## TOTAL SULPHATE PULP

(IN TONS OF 2,000 POUNDS)

BLEACHED 930,295 18%	CAPACITY 5,314,170	UNBLEACHED 4,383,875 82%
BLEACHED 844,170 19%	CONSUMPTION 4,449,232	UNBLEACHED 3,605,053 81%
BLEACHED 799,886 19%	NEW SUPPLY 4,278,932	UNBLEACHED 3,479,046 81%
BLEACHED 746,281 18%	PRODUCTION 4,248,550	UNBLEACHED 3,502,269 82%
BLEACHED 53,296 80%	DOMESTIC SALES 264,415	UNBLEACHED 211,119 80%
BLEACHED 62,000 40%	IMPORTS 153,139	UNBLEACHED 81,139 90%
BLEACHED 8,395 7%	EXPORTS 122,757	UNBLEACHED 114,368 93%

## PAPER GRADES - BLEACHED SULPHITE PULP

(IN TONS OF 2,000 POUNDS)

CAPACITY 1,573,682
CONSUMPTION 1,430,390
NEW SUPPLY 1,365,171
PRODUCTION 1,187,998
DOMESTIC SALES 355,493
IMPORTS 220,708
EXPORTS 43,535

(By U. S. Pulp Producers Association. These are preliminary estimates, only slightly revised at later date.)



by the United States Pulp Producers Association.

Total pulp output, inclusive of all grades—chemical and mechanical—during the first quarter of 1944 reached 2,296,227 short air dry tons, the Association reports. This represented an increase of 27,252 tons, or 1.2 per cent, above a total of 2,368,975 tons produced in the corresponding three months a year ago.

### Wood Pulp Fires

#### All Sizes of Guns

● Considerably more than half of the smokeless powder made in the United States is manufactured out of wood pulp. At the outset of the last World War it was produced entirely from cotton linters. Canadian pulp mills are also big producers of cordite for the British army and navy.

All of the smokeless powder made from wood pulp in the United States now comes from Washington state mills. It takes one pound of pulp to make three pounds of powder.

It is used as propellant for almost all sizes of guns, especially for anti-aircraft and machine guns.

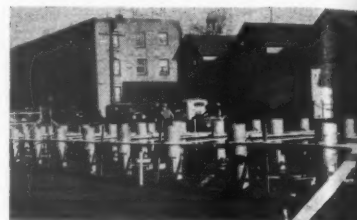
Pulpwood from a single Western hemlock of average size (1500 bd. ft.) will produce enough smokeless powder to fire:

(a) A 16-inch naval gun (on battle-ships) three times;

(b) 450,000 rounds of ammunition from a Garand rifle—enough to turn the tide of a battle in Europe or the South Pacific;

(c) More than 2,000 armor-piercing shells from a 105 mm. cannon aboard a warship or on a battlefront;

(d) 1,000 shots from a 155 mm. gun, familiarly known to the army as "Long Tom," requires about 20,000 pounds of wood pulp to make the necessary powder.



**PAPERBOARD IS NOW BEING USED FOR THE FIRST TIME** as tubular concrete pier forms. These are called Sonotubes, manufactured by the SONOCO PRODUCTS CO., Hartsville, S. C., and Mystic, Conn. Approved by army and navy engineers, the federal housing authority and public buildings administration, they have saved the government several million dollars in labor, lumber, etc.

## 1943

### BLEACHED SULPHATE PULP

(IN TONS OF 2,000 POUNDS)

CAPACITY* 930,295
CONSUMPTION 844,179
NEW SUPPLY 799,886
PRODUCTION 746,281
IMPORTS 62,000
DOMESTIC SALES 53,296
EXPORTS 8,395

### UNBLEACHED SULPHATE PULP

(IN TONS OF 2,000 POUNDS)

CAPACITY 4,383,875
CONSUMPTION 3,605,053
PRODUCTION 3,502,269
NEW SUPPLY 3,479,046
DOMESTIC SALES 211,119
EXPORTS 114,362
IMPORTS 91,139

\*331,610 Tons additional bleaching capacity utilized for Unbleached Sulphate

(By U. S. Pulp Producers Association. These are preliminary estimates, only slightly revised at later date.)



1943

## SODA PULP

(IN TONS OF 2,000 POUNDS)

CAPACITY 503,711
CONSUMPTION 447,248
NEW SUPPLY 433,690
PRODUCTION 419,298
DOMESTIC SALES 87,500
IMPORTS 19,892
EXPORTS 5,500

## GROUNDWOOD PULP

(IN TONS OF 2,000 POUNDS)

CAPACITY 2,486,779
CONSUMPTION 1,943,728
NEW SUPPLY 1,931,080
PRODUCTION 1,718,000
IMPORTS 213,370
DOMESTIC SALES 48,863
EXPORTS 290

\* Does not include Off-quality Groundwood or Screenings

(By U. S. Pulp Producers Association. These are preliminary estimates, only slightly revised at later date.)

## STOCKS OF WOOD PULP OF OWN PRODUCTION

Held by United States Wood Pulp Producers

(In Tons of 2,000 Lbs.—Does not include purchased pulp)

	January 1, 1943		December 31, 1943	
	For Own Use	For Market	For Own Use	For Market
Total All Grades .....	121,067	22,926	55,786	5,598
Total Sulphite .....	18,702	20,261	13,709	4,546
Bleached Sulphite .....	7,656	13,726	6,692	3,893
Unbleached Sulphite .....	11,046	6,535	7,017	653
Total Bleached Sulphate .....	7,499	1,456	3,548	0
Total Unbleached Sulphate .....	49,784	466	7,690	290
Total Soda .....	3,311	288	2,457	313
Semi-Chemical .....	153	0	72	0
Chemical Screenings .....	1,560	181	1,466	272
Groundwood .....	39,290	334	26,501	177
Groundwood Screenings .....	768	0	345	0

Source: As reported to the United States Pulp Producers Association.



# TOTAL UNITED STATES PRODUCTION OF WOOD PULP By Grades — 1925-1943

(Tons of 2000 pounds)

Year.	Total	Unbleached Sulphite	Bleached Sulphite	Total Sulphate	Groundwood	Soda	All Other
1925	3,962,217	790,510	612,576	409,768	1,612,019	472,647	64,697
1926	4,394,766	911,729	646,466	519,960	1,764,248	496,920	55,463
1927	4,313,403	872,411	680,288	603,253	1,610,409	487,478	59,564
1928	4,510,800	836,751	722,107	774,225	1,610,988	488,641	78,388
1929	4,862,885	848,754	839,953	910,888	1,637,653	520,729	104,908
1930	4,630,308	815,897	751,166	949,513	1,560,221	474,230	79,281
1931	4,409,344	675,859	740,812	1,034,291	1,449,240	374,054	135,088
1932	3,760,267	548,702	596,937	1,028,846	1,203,044	290,703	92,035
1933	4,276,204	601,102	726,473	1,259,351	1,197,553	457,790	33,935
1934	4,281,428	599,905	806,612	1,240,967	1,253,398	477,089	35,457
1935	5,032,299	634,947	944,620	1,467,749	1,355,819	485,162	144,002
1936	5,695,219	693,903	1,127,039	1,794,734	1,475,620	557,695	46,228
1937	6,713,576	791,575	1,348,669	2,139,087	1,600,667	507,548	326,030
1938	5,933,560	601,855	1,004,621	2,443,057	1,333,308	395,307	155,418
1939	6,993,334	729,203	1,217,249	2,962,657	1,444,875	441,565	357,929
1940	8,851,740	990,668	1,601,016	3,725,135	1,762,821	548,047	164,940
1941	10,200,726	1,215,649	1,703,131	4,394,338	1,925,284	617,012	345,312
1942	10,227,720	1,212,354	1,718,192	4,725,133	1,889,607	453,459	228,975
1943	9,070,157	885,251	1,557,729	4,247,428	1,711,862	419,186	248,701

<sup>1</sup>For 1937: "Superpurified" and "Rayon and special grades" combined amounted to 353,640 tons.<sup>2</sup>For 1938: "Superpurified" and "Rayon and special grades" combined amounted to 228,261 tons.<sup>3</sup>For 1939: "Superpurified" and "Rayon and special grades" combined amounted to 193,420 tons.<sup>4</sup>Includes "Superpurified" and "Rayon and special grades" to avoid disclosing figures for individual establishments for 1940.

Source: From 1925 through 1933 and for 1935 through 1941, U. S. Census. 1934, 1942 and 1943 data from United States Pulp Producers Association.

## SUMMARY FOR 1943 OF UNITED STATES WOOD PULP PRODUCTION, SHIPMENTS and STOCKS

(Tons of 2,000 lbs., air dry weight)

	Production	Used*	Shipments		Stocks on Hand	
			Domestic Market	Export	End of Period	12/31/43
Total All Grades, 1943	9,070,157	7,579,474	1,313,067	260,326	61,384	143,993
Total Bleached Sulphite	1,557,729	798,604	710,340	59,582	10,585	21,382
Total Unbleached Sulphite	885,251	628,756	194,311	72,095	7,670	17,581
Total Bleached Sulphate	746,235	689,951	53,296	8,395	3,548	8,955
Total Unbleached Sulphate	3,501,193	3,217,982	211,119	114,362	7,980	50,250
Total Soda	419,186	327,011	87,944	5,000	1,770	3,539
Semi-Chemical	231,874	231,920	35	0	72	153
Chemical Screenings	13,979	6,354	7,026	602	1,738	1,741
Groundwood	1,711,862	1,675,659	48,859	290	26,678	39,624
Groundwood Screenings	2,848	3,136	137	0	343	768

Source: United States Pulp Producers Association.

\*Covers only pulp manufactured by producing mills or transferred to their subsidiaries. Does not include purchased pulp.

## SUMMARY FOR 1942 OF UNITED STATES WOOD PULP PRODUCTION, SHIPMENTS and STOCKS

(Tons of 2,000 lbs., air dry weight)

	Production	Used*	Shipments		Stocks on Hand	
			Domestic Market	Export	End of Period	12/31/42
Total All Grades, 1942	10,227,720	8,066,923	1,731,599	379,814	143,993	94,609
Total Bleached Sulphite	1,718,192	772,546	841,778	104,098	21,382	21,612
Total Unbleached Sulphite	1,212,354	730,975	367,541	110,709	17,581	14,452
Total Bleached Sulphate	811,601	709,119	76,472	21,433	8,955	4,378
Total Unbleached Sulphate	3,913,532	3,438,139	293,322	141,374	50,250	9,553
Total Soda	453,459	352,012	98,857	2,000	3,539	2,949
Semi-Chemical	211,747	211,674	3	0	153	83
Chemical Screenings	13,835	5,960	6,626	200	1,741	692
Groundwood	1,889,607	1,843,725	46,898	0	39,624	40,640
Groundwood Screenings	3,393	2,773	102	0	768	250

Source: United States Pulp Producers Association.

\*Covers only pulp manufactured by producing mills or transferred to their subsidiaries. Does not include purchased pulp.



# UNITED STATES WOOD PULP PRODUCTION BY REGIONS — 1943

(Tons of 2,000 Pounds)

Region	Total All Grades	Total Sulphite	Bleached Sulphite	Unbleached Sulphite	Total Sulphate	Bleached Sulphate	Unbleached Sulphate	Ground-wood	Soda	Semi-Chemical
West Coast	1,521,531	895,938	550,078	345,860	333,140	27,568	305,572	245,663	**	37,790
New England	1,308,904	545,706	356,655	189,051	38,685	0	38,685	593,902	125,317	5,294
Middle Atlantic	731,757	281,251	158,717	122,534	46,849*	46,849	*	256,760	144,079	2,818
Lake States	1,317,226	603,763	375,957	227,806	288,923	53,566	235,357	381,255	40,785	2,500
South	4,190,739	116,322	116,322	0	3,539,831	618,252	2,921,579	225,282	109,005	200,299
Totals	9,070,157	2,442,980	1,557,729	885,251	4,247,428	746,235	3,501,193	1,711,862	419,186	248,701

\*Unbleached included in New England's total to avoid disclosing one company's data.

\*\*Soda included in Lake States' total to avoid disclosing one company's data.

Source: United States Pulp Producers Association.

## WOOD PULP PRODUCTION BY REGIONS—1942

(Tons of 2,000 Pounds)

Region	Total All Grades	Total Sulphite	Bleached Sulphite	Unbleached Sulphite	Total Sulphate	Bleached Sulphate	Unbleached Sulphate	Ground-wood	Soda	Semi-Chemical†
West Coast	1,968,658	1,194,868	632,510	562,358	432,896	68,634	364,262	300,174	*	40,720
New England	1,419,514	652,854	421,538	231,316	95,130*	58,018	37,112	636,589	127,559	2,512
Middle Atlantic	857,744	298,392	157,462	140,930	*	0	*	306,185	153,611	4,426
Lake States	1,434,532	650,532	373,112	277,420	300,958	44,955	256,003	422,977	57,145**	2,920
South	4,543,879	133,900	133,570	330	3,896,149	639,994	3,256,155	223,682	115,144	175,004
Totals	10,224,327	2,930,546	1,718,192	1,212,354	4,725,133	811,601	3,913,532	1,889,607	453,459	225,582

†Includes screenings.

\*Unbleached sulphate produced in New England combined with Middle Atlantic production to avoid disclosing one company's data.

\*\*Soda produced on Pacific Coast combined with Lake States production to avoid disclosing one company's data.

Total Groundwood screenings produced during 1942 amounted to 3,393 tons. Production by regions as follows: New England 2,924 tons, Lake States 469 tons.

## REGIONAL PERCENTAGES OF UNITED STATES WOOD PULP PRODUCTION

Total and by Grades in 1941, 1942 and 1943

Region	Sulphite			Sulphate			Groundwood			Soda			Total		
	1941	1942	1943	1941	1942	1943	1941	1942	1943	1941	1942	1943	1941	1942	1943
New England	22	22	22		*	1	35	34	35	22.5	28	30	14.5	14	14.5
Middle Atlantic	9	10	11.5	.5	2.5	1	16.5	16	15	34	34	34	8	8	8
Lake States	24	22	25	7	6.5	7	22	22	22	11.5	13**	10	14.5	14	14.5
South	4	5	5	82.5	82	83	9	12	13	32	25	26	43	45	46
West Coast	41	41	36.5	10	9	8	17.5	16	15	**	**	**	20	19	17
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

\*Unbleached sulphate produced in New England combined with Middle Atlantic production to avoid disclosing one company's data.

\*\*Soda produced on West Coast combined with Lake States production to avoid disclosing one company's data.

Source: United States Pulp Producers Assn.

## PACIFIC COAST PULP PRODUCTION — 1929-1943

Pacific Coast States and British Columbia

(Tons of 2,000 lbs.)

	1929 Tons	1930 Tons	1931 Tons	1932 Tons	1933 Tons	1934 Tons	1935 Tons	
Washington	523,948	566,137	580,016	420,529	583,770	709,380	775,722	
Oregon and California	256,546	248,952	237,532	187,133	189,332	240,167	262,221	
British Columbia	304,619	335,429	310,029	239,586	343,897	383,818	377,522	
Total Pacific Coast	1,085,113	1,150,518	1,127,577	867,248	1,117,999	1,333,365	1,415,465	
	1936 Tons	1937 Tons	1938 Tons	1939 Tons	1940 Tons	1941† Tons	1942* Tons	1943* Tons
Washington	895,797	1,184,390	836,959	1,107,318	1,443,121	1,475,671	1,572,841	1,153,177
Oregon and California	302,634	338,802	250,788	270,829	396,142	518,479	421,154	403,306
British Columbia	416,433	425,558	242,020	321,132	445,564	494,811	448,272	385,875
Total Pacific Coast	1,614,864	1,948,750	1,329,767	1,699,279	2,284,827	2,488,861	2,442,267	1,942,358

Source—U. S. figures up to and including 1940, from U. S. Dept. of Commerce, Bureau of Census; B. C. figures from Dept. of Lands, Forest Branch; and Dominion Bureau of Statistics.

† Figures based upon United States Pulp Producers Association total for Oregon and Washington. Division of production between Oregon and Washington estimated by Pacific Pulp &amp; Paper Industry. No wood pulp production in California.

\*U. S. War Production Board.

## U. S. PACIFIC COAST WOOD PULP PRODUCTION, 1923-1943

Tons of 2,000 lbs.

1923	299,596	1930	815,089	1937	1,523,192
1924	309,433	1931	817,548	1938	1,087,747
1925	322,594	1932	607,662	1939	1,384,147
1926	378,005	1933	773,102	1940	1,839,263
1927	449,218	1934	935,033	1941	1,994,150
1928	562,514	1935	1,011,421	1942	1,968,658
1929	780,494	1936	1,198,431	1943	1,521,531

—Source, U. S. Pulp Producers Assn.



### PRODUCTION OF WOOD PULP, BY REGION AND BY STATE: 1943 AND 1942 (Tons of 2,000 pounds)

Region and State	1943	1942	Region and State	1943	1942
Aggregate	9,544,130	10,710,154	Southern States	4,422,614	4,830,195
Northeastern States	2,123,273	2,362,494	Virginia	549,343	565,381
Maine	1,103,770	1,181,778	North Carolina	365,427	406,644
Vermont	15,694	16,932	Florida	603,142	682,973
New York	504,857	582,453	Alabama	297,118	350,945
New Jersey	31,701	31,274	Mississippi	355,376	343,346
Pennsylvania	243,632	263,268	Louisiana	866,953	987,213
Other No. E. States	223,619	286,789	Other Southern States	1,405,255	1,493,693
Central States	1,422,030	1,523,470	Pacific States	1,556,213	1,993,995
Michigan	195,048	207,163	Washington	1,153,177	1,572,841
Wisconsin	835,076	887,918	Other Pacific States	403,306	421,154
Minnesota	339,967	356,294			
Other Central States	51,939	72,095			

NOTE: To avoid disclosing operations of individual mills, data for the following states are shown in combination only: Northeastern States—New Hampshire, Massachusetts, and Rhode Island; Central States—Ohio and Illinois; Southern States—Maryland, South Carolina, Georgia, Tennessee, Texas and Arkansas; Pacific States—California and Oregon.

Source: 1943 and the last nine months of 1942, Pulp Allocation Office, War Production Board; first three months of 1942, Bureau of the Census.

### WOOD PULP PRODUCTION, CONSUMPTION, IMPORTS, EXPORTS UNITED STATES

1943

(In tons of 2,000 pounds)

Grade—	Consumption*	Production	Imports	Exports
Sulphite:				
Bleached	1,859,855	1,557,729	361,708	59,582
Unbleached	1,293,453	885,251	480,297	72,095
Total	3,153,308	2,442,980	842,005	131,677
Sulphate:				
Bleached	799,840	746,235	62,000	8,395
Unbleached	3,477,970	3,501,193	91,139	114,362
Total	4,277,810	4,247,428	153,139	122,757
Soda	434,078	419,186	19,892	5,000
Groundwood	1,924,942	1,711,862	213,370	290
TOTAL	9,790,138	8,821,456	1,228,406	259,724

Source: Estimated for 100 per cent of the industry by the United States Pulp Producers Association.

\*Estimated on the basis that consumption equals production and imports, minus exports. Figures do not include semi-chemical and off-quality grades.

### WOOD PULP PRODUCTION, CONSUMPTION, IMPORTS, EXPORTS

1942

(In tons of 2,000 pounds)

Grade—	Consumption <sup>1</sup>	Production	Imports	Exports
Sulphite:				
Bleached	1,983,342	1,722,876	370,000	109,534
Unbleached	1,530,439	1,209,290	430,000	108,851
Total	3,513,781	2,932,166	800,000	218,385
Sulphate:				
Bleached	841,860	811,293	52,000	21,433
Unbleached	3,881,977	3,917,959	105,000	140,982
Total	4,723,837	4,729,252	157,000	162,415
Soda	470,000	453,000	19,000	2,000
Groundwood	2,105,000	1,893,000	212,000	
TOTAL	10,812,618	10,007,418	1,188,000	382,800

Source: United States Pulp Producers Association.

<sup>1</sup>Estimated on the basis that consumption equals production and imports, minus exports.

1942 figures estimated by United States Pulp Producers Association as figures from the U. S. Department of Commerce, Bureau of Foreign & Domestic Commerce, are not available due to war measure.



### Pulp and Paper Industry Normally 6th In U. S.

● The pulp and paper industry in normal times is the sixth leading manufacturing industry in the United States, from the standpoint of value added by manufacture, according to The Conference Board Industry Record, published in 1942 by the National Industrial Conference Board, Inc.

It based its ranking on data from 1939 records, the latest year available and during which most of the world was at peace until the last months of that year.

The pulp and paper industry was out-ranked only by the automobile, steel, newspaper publishing, baking and petroleum industries. Value added by manufacture in 1939 amounted to \$483,000,000. The industry consisted of 832 establishments, employing 137,445 wage earners and paying aggregate wages of \$176,000,000 according to this report. Including converted paper products, the industry in 1939 consisted of 3,279 establishments with 264,716 wage earners paid

\$310,000,000. Value added by manufacture for this larger group of producers totaled \$870,000,000, as compared with \$800,000,000 in 1929 and only \$90,000,000 at the beginning of the century.

From the standpoint of total invested capital (total assets, less investments), the paper and pulp industry ranked seventh among major groups of manufacturing industries in 1939. Total capital, according to a compilation of The Conference Board, amounted to \$1,748,000,000, equal to 3.7 per cent of the capital of all manufacturing companies. On the basis of capital invested relative to the number of wage earners, the industry ranked second in 1939, and it also held this position in terms of capital invested for each dollar of wages paid. For each wage earner employed, invested capital amounted to \$7,367 as compared with an average of \$6,047 for all manufacturing.

(Note—Chart below shows U. S. pulp production as of each month over a period of five years).

### Washington and Maine Biggest Pulp States

● Washington again led all the states in the production of pulp in 1943. Maine was a close second. These were the only two states over the million-ton mark.

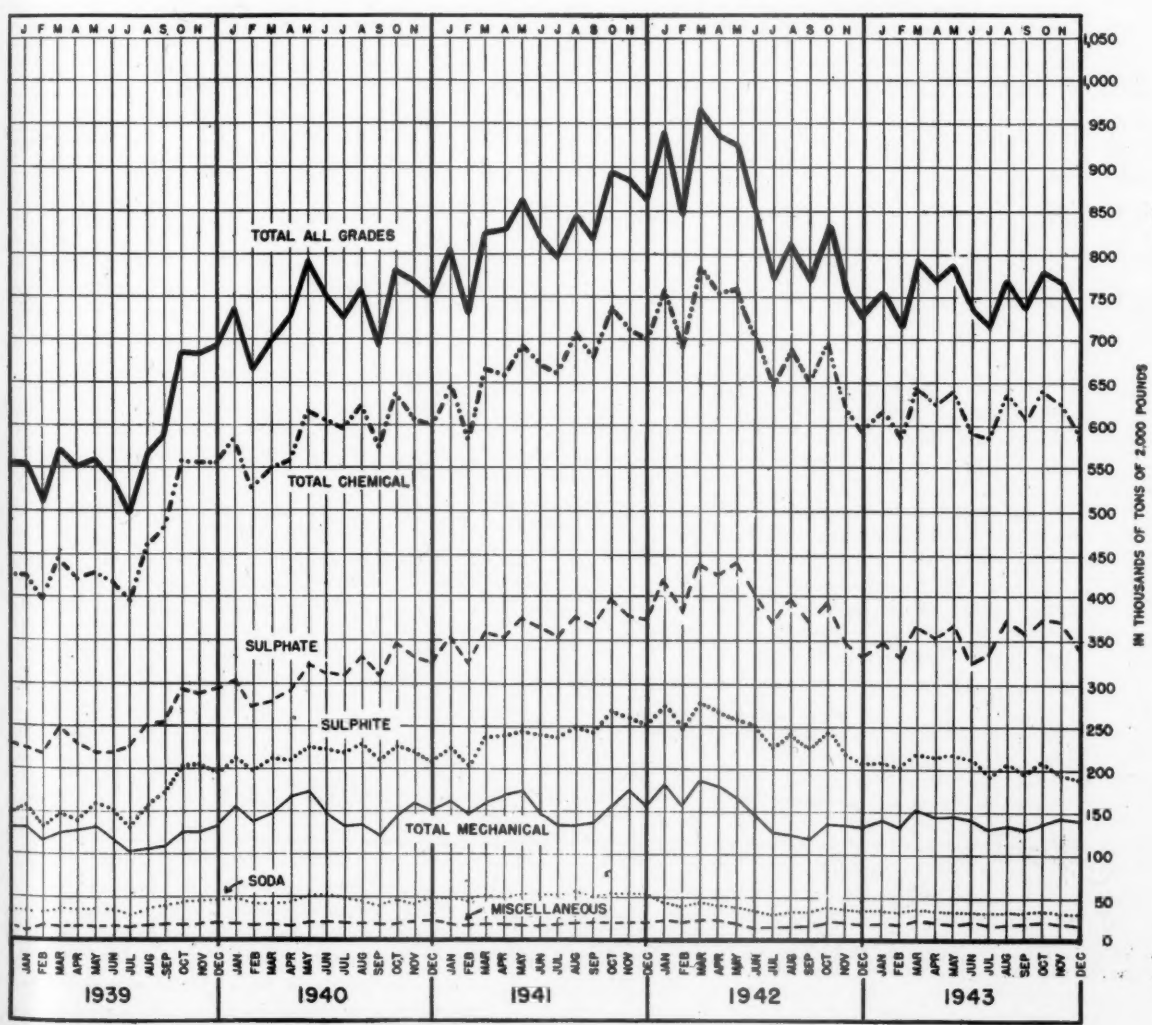
According to the tables issued by the bureau of census, Washington produced 1,153,177 tons compared with 1,572,841 tons in 1942. The WBP's closing of three Washington mills put quite a crimp in its 1942 record.

Maine produced 1,103,770 tons, not much of a drop from 1,181,778 tons in 1941, and it continued to lead all other northeastern states combined.

Wisconsin, with 835,076 tons, led the central states. Louisiana, with 866,953 was tops in the south.

In all the country only two states showed increases. Mississippi went up 12,000 tons to 355,376 tons. New Jersey—not an important user—went up 500 tons to 31,701, probably reflecting new use of hitherto valueless Jersey scrub pine.

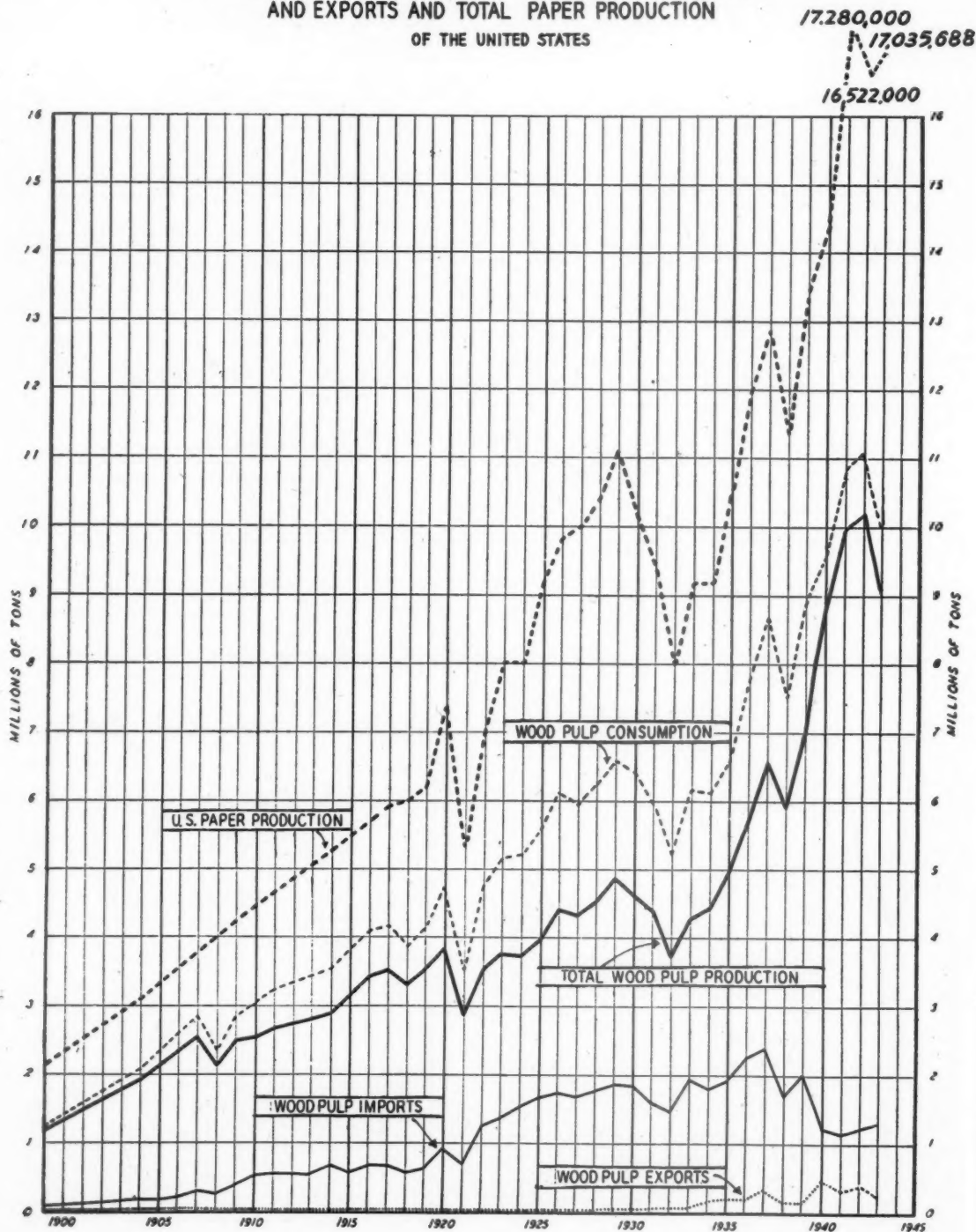
## UNITED STATES WOOD PULP PRODUCTION



Source: Estimated for 100% of industry by U.S. Pulp Producers Association



**TOTAL WOOD PULP PRODUCTION, CONSUMPTION, IMPORTS  
AND EXPORTS AND TOTAL PAPER PRODUCTION  
OF THE UNITED STATES**



Sources for Paper Production—U. S. Bureau of the Census except 1924, 1926 and 1942 estimated by American Paper & Pulp Association. For Pulp Production—1899-1940 U. S. Bureau of the Census, 1942 estimated by U. S. Pulp Producers Association. Imports and Exports—U. S. Bureau of Foreign & Domestic Commerce, 1942 estimated by USPPA.

United States Pulp Producers Association



## Industry Employs 300,000 in U. S. Its Communities Offer Full Life

**M**ORE so than in many other industries, the pulp and paper industry is an important source of support to many of the middle-sized, semi-rural communities of North America. Even under wartime conditions—and it will be more true when peace returns—this industry is an outstanding source of prosperity and good living to great sections of the population of Canada and the United States.

In the United States, the entire industry gives employment to 300,000 persons and pays out \$300,000,000 or more in salaries and wages. But the American Paper & Pulp Association has gone farther than this in explaining the contribution of the industry to the national economy.

It finds that in 511 towns and cities in 36 states, 969 primary pulp and paper mills give employment to 185,719 persons, while an additional 913,058 are dependent on these mills. The total number in the entire country employed by or dependent on the industry was estimated in May, 1942, as 1,098,757, or about one in every 130 persons.

Attractive modern towns like Kalamazoo, Mich., and Appleton and Neenah, Wis., are centers of this industry. Anyone who works in the paper mills in these towns hardly consider themselves just "cogs in a machine of industry." They have cultural and recreational advantages that are not afforded populations in many of the much larger cities of the country.

Kalamazoo has a community-supported theater (men in the pulp and paper industry and their women folk are among the actors) which has been widely acclaimed as the best civic theater in the whole country. This is just one of the distinctive features of that pleasant town.

Nearby is the model town of Parchment, Mich., home of a portion of the employes of Kalamazoo Vegetable Parchment Company. There is no "patronage" or "company domination" of this town of home owners. Jacob "Uncle Jake" Kindleburger, founder of the company, donated an extensive park of 80 acres. Many residents have been financially assisted to buy and own their own homes. The primary school is reputedly the best one in Michigan.

### CENTERS OF PULP & PAPER INDUSTRY

State	No. of towns with paper & pulp mills	No. of paper & pulp mills	Total employed by paper & pulp mills	Additional persons dependent on mills
New York .....	81	158	17,754	104,741
Wisconsin .....	33	84	15,973	63,892
Maine .....	29	55	14,378	59,494
Massachusetts .....	40	89	13,795	93,804
Michigan .....	29	68	13,263	56,492
Pennsylvania .....	39	68	12,795	67,430
Washington .....	13	33	12,102	62,567
Louisiana .....	8	16	7,158	34,430
New Jersey .....	27	41	6,179	37,695
Virginia .....	11	24	6,128	27,210
New Hampshire .....	19	36	6,039	25,365
North Carolina .....	7	11	5,827	21,209
Illinois .....	19	27	4,702	24,165
Minnesota .....	8	21	4,029	20,063
Florida .....	6	12	3,667	22,221
Oregon .....	7	17	3,516	12,622
Maryland .....	8	9	2,980	15,288
Indiana .....	18	20	2,858	16,349
Alabama .....	3	10	2,784	10,858
South Carolina .....	3	7	2,533	8,612
Connecticut .....	16	28	2,398	9,642
Mississippi .....	4	7	2,035	6,655
California .....	9	12	2,015	12,876
British Columbia .....	8	8	3,225	17,335

In Canada and in Washington and Oregon states are many pulp and paper mill towns which offer "a full life" to the residents—hunting and fishing and scenic splendor around them as well as the conveniences of the big cities at the same time. Powell River, B. C., Camas, Wash., and Port Angeles, Wash., are some examples.

Port Townsend, Wash., is a striking example of a picturesque, historical city literally brought back to life by a pulp and paper industry. In the last century, this town was the terminus of sailing ships on Puget Sound and continued to be a commercial center until the railroads came to Seattle and Tacoma. It was a "ghost city" when the Crown Zellerbach Corp. decided to build their big kraft mill there.

Many other medium sized communities are dotting the maps of United States and Canada, offering unusual advantages to their citizens, through the local pulp and paper industries.

The study made by the AP&PA

dealt only with primary mills and in the 36 states concerned, it found about one out of every 35 persons employed or dependent on the industry.

The association's study shows that 83 per cent of the primary mills are in communities of less than 50,000 population each, that 58 per cent are in towns of less than 10,000. In other words, pulp and paper mill towns tend to be small enough so that individuals have a more complete life.

In relation to the rest of the United States, the state of Washington ranks seventh, Oregon sixteenth and California 23rd in total number of persons employed in basic pulp and paper industries. In number of persons dependent on the industry, New York, Massachusetts, Pennsylvania, Wisconsin and Washington rank in that order.

Above are figures on 23 leading states, ranked in order according to total number employed in the industry (and also British Columbia).



# CANADIAN INDUSTRY: Its Position Is Strong Compared to Prewar Years

Unofficial data shows slight decreases in 1943 production of pulp and newsprint from 1942 levels . . . Gross value of products set new high record in 1942, last year for official figures . . . More men in woods than a year ago.

**D**EVELOPMENT of Canada's pulp and paper industry really began in 1912, prior to which year production of woodpulp in the dominion amounted to less than half a million tons. World War I gave the industry its first major impetus and Canada stepped into the forefront of world pulp and paper production.

Pulp production almost doubled between 1910 and 1914. By 1920 output had expanded by over a million tons from 1914 and in 1929 it amounted to more than 4 million tons. In 1941 pulp production attained the record figure of 5,720,847 tons—more than ten times the 1910 output. Today, between 75 and 80 per cent of the woodpulp produced in Canada is converted into paper in Canadian mills.

Woodpulp production was estimated at 5,120,000 tons in 1943, as compared with 3,472,804 in 1942, last official figure.

Due primarily to shortage of labor in the woods—a situation that is now receiving vigorous attention,

production of newsprint in Canada declined last year, totalling about 2.9 million tons, compared with 3.1 million tons the previous year. But reports from eastern Canada indicate that the 1943-44 pulpwood cut will exceed that of the previous twelvemonth.

(Further data on the Canadian industry will be found in other departments in this issue—pulp, newsprint, payrolls, etc.)

So far as official statistics of the Canadian pulp and paper industry are concerned, the last year for which they are available is 1942, when new records were established for gross value of products—\$337,390,484, and for cost of materials and supplies used—\$135,970,437. The year 1942 also marked a record in the number of persons employed in the industry—38,251; salaries and wages paid, \$69,656,393 and fuel consumption—\$20,382,901. But there were decreases in net value of products—\$165,193,627; capital employed, \$655,598,196; power

equipment in use, 1,960,060 h.p., and electricity purchased, \$15,843,519.

The volume of pulp and paper produced in 1942 was lower than the previous year, chiefly because of decreases in the production of mechanical pulp and newsprint paper. As a result, there were decreases in capital employed, power equipment in use and electricity purchased.

But the increase which took place in the production of chemical pulp and the better grades of paper, because of the much higher value of these products, more than offset the decrease in production of the cheaper kinds of paper and pulp and accounted for the increases in gross value, cost of materials, employees and salaries and wages.

Complete statistics for the other industries are not yet available for 1942, but in 1941 pulp and paper ranked first with respect to wage and salary distribution, capital investment and net value of production; it was second only to the non-ferrous metal smelting and refining group with respect to gross production and second to sawmills with respect to employment.

## Record for Value

● Considering only the manufacturing aspect of the industry or the

## CANADIAN PAPER PRODUCTION (Selected Years)

	Newsprint		Total	
	Tons	\$ Value	Tons	\$ Value
1917	689,847	38,868,084	853,689	58,750,341
1922	1,081,364	75,971,327	1,366,815	106,260,078
1929	2,725,331	150,800,157	3,197,149	192,989,252
1932	1,919,205	85,539,852	2,299,767	114,115,370
1939	2,926,597	120,858,583	3,600,502	170,776,062
1940	3,503,801	158,447,311	4,319,414	225,836,809
1941	3,519,733	158,925,310	4,524,776	241,153,292
1942	3,257,180	147,074,109	4,241,767	230,962,719

Dominion Bureau of Statistics.

## CANADIAN PULP PRODUCTION

(Tons of 2,000 lbs.)

	Mechanical Tons	Sulphite Tons	Sulphate <sup>1</sup> Tons	Total Tons		Mechanical Tons	Sulphite Tons	Sulphate <sup>1</sup> Tons	Total Tons
1920	1,090,114	654,273	188,487	1,922,774	1934	2,340,441	1,020,493	205,980	3,566,914
1921	931,560	476,929	131,337	1,539,826	1935	2,458,000	1,025,000	206,000	3,689,000
1922	1,241,185	678,878	217,862	2,137,925	1936	2,910,338	1,168,927	273,494	4,352,759
1923	1,449,106	749,668	224,812	2,413,586	1937	3,308,517	1,373,232	312,741	4,994,490
1924	1,427,782	768,035	218,207	2,414,024	1938	2,650,000	925,000	258,000	3,833,000
1925	1,621,917	842,785	242,207	2,706,909	1939	2,738,011	1,028,820	313,628	4,080,459
1926	1,901,268	995,203	256,074	3,152,545	1940	3,305,484	1,480,545	399,267	5,290,762
1927	1,922,124	1,016,060	262,512	3,200,696	1941	3,494,922	1,664,516	426,743	5,720,847
1928	2,127,699	1,117,227	256,969	3,501,895	1942	3,260,097	1,653,453	459,254	5,606,461
1929	2,420,774	1,236,232	250,104	3,907,110	1943*	2,980,000	1,700,000	440,000	5,120,000
1930	2,283,130	1,076,804	188,253	3,548,187					
1931	2,016,480	941,586	145,156	3,103,222					
1932	1,696,021	941,579	144,367	2,781,967					
1933	1,859,049	937,313	182,988	2,979,350					

<sup>1</sup>Prior to 1939 the sulphate totals included sulphate pulps only. 1939, 1940 and 1941 sulphate totals include soda and other pulp, according to the Dominion Bureau of Statistics.

\*Estimated. For all other years figures are official.



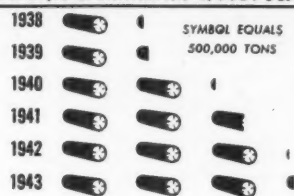
manufacture of woodpulp and paper, the gross value of production in 1942 was \$337,390,484. This represents an increase of 0.9 per cent over the previous record of 1941 and an increase of 173.4 per cent over 1933 when production reached its lowest level.

One hundred and five mills operated in 1942, a decrease of one mill from the previous year. The same mills operated in both years, except a pulp and paper mill in Quebec which ceased operations.

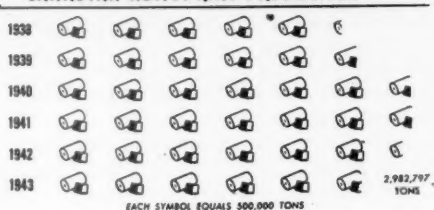
The 78 mills manufacturing pulp produced 5,606,461 tons valued at \$192,145,062, as compared with 5,720,847 tons valued at \$175,439,551 in 1941, representing a decrease in quantity of 2.0 per cent but an increase in value of 9.5 per cent.

Of this 1942 total, 68.6 per cent, or 3,847,244 tons valued at \$86,998,248, was produced by combined pulp and paper mills for their own use in paper-making, equal to a decrease of 7.0 per cent in tonnage and an increase of 4.1 per cent in value as compared with the 1941 figures. The remaining 31.4 per cent was made for export and for sale in Canada with tonnage 11.1 per cent

## EXPORTS OF CANADIAN WOODPULP



## CANADIAN NEWSPRINT PRODUCTION



From Official Canadian Bulletin "Canada at War"

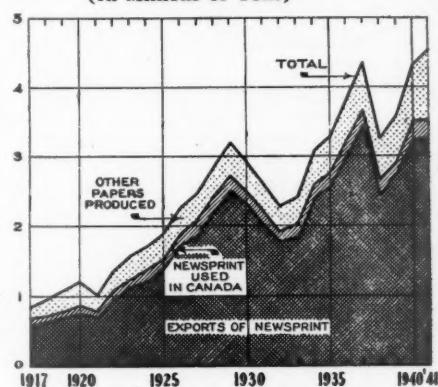
and value 14.4 per cent higher than in 1941.

The 77 mills making paper in 1942 produced 4,241,767 tons of paper and other products valued at \$230,962,719, as compared with 4,524,776 tons with a value of \$241,153,292 in the previous year, showing decreases of 6.3 per cent in quantity and 4.2 per cent in value.

Newsprint made up 76.8 per cent of the total reported tonnage of paper manufactured in 1942. Newsprint produced amounted to 3,257,180 tons with a value of \$147,074,109, as compared with 3,519,733 tons valued at \$158,925,310 in 1941, representing decreases of 7.5 per cent in tonnage and in value.

From a situation that verged on

## Canada's Paper Production and Newsprint Exports (In Millions of Tons)

CANADA  
Wood Pulp Exports

(Tons of 2,000 lbs.)

Year—	Chemical Pulp		Mechanical Pulp		Total, All Pulp	
	Tons	Value	Tons	Value	Net Tons	Value
1942*					1,510,727	\$95,266,873
1941	1,140,563	77,061,928	271,157	8,835,808	1,411,720	85,897,736
1940	864,406	54,665,080	204,084	6,265,069	1,068,490	60,930,149
1939	536,864	26,910,425	168,651	4,090,177	705,515	31,000,602
1938	429,832	24,816,491	124,202	2,914,247	554,034	27,730,738
1937	703,915	37,670,179	166,796	4,145,552	870,711	41,815,121
1936	620,977	28,405,644	133,512	2,841,051	754,489	31,246,695
1935	538,419	24,993,785	124,049	2,631,945	662,468	27,625,730
1934	486,990	22,716,942	118,645	2,727,902	605,635	25,444,844
1933	476,358	20,666,614	132,151	2,688,023	608,509	23,354,637
1932	336,063	16,367,976	116,229	2,562,080	452,292	18,930,065
1931	457,435	25,450,476	165,096	4,606,167	622,531	30,056,643
1930	551,413	33,092,807	208,759	5,967,172	760,172	39,059,979
1929	626,378	37,670,383	209,331	5,906,638	835,709	43,577,021
1928	660,136	40,068,703	203,670	5,546,120	863,806	45,614,323
1927	618,324	39,234,577	260,831	7,761,464	879,155	46,996,011
1926	621,004	40,571,304	382,077	11,505,818	1,003,081	52,077,122
1925	599,466	37,358,632	360,265	10,573,273	959,671	47,931,905
1924	528,279	32,326,943	253,699	7,916,029	781,978	40,242,972
1923					875,358	37,027,496
1922					818,246	41,037,849
1921					527,222	33,133,675
1920					819,985	76,563,978
1919					709,134	37,184,764
1918					583,911	33,359,922

\*Latest year available.



the desperate nine or ten months ago, the number of men in the pulp woods in eastern Canada is currently about 9,000 above the figure a year ago, a gain of approximately 37 per cent. However, the percentage gain in manpower will not be reflected in the total production for the season as the improvement materialized late in the year. Another point is that while more wood has

been cut in recent months, there is still a bottleneck in getting it to the mills.

See *British Columbia Industry*, p. 115.

### Authorities Reluctant To Give Details

There is a reluctance on the part of the Canadian government authorities as well as company executives to give any detailed information concerning volume or nature of production, on the grounds

of "national security."

In 1943, production of chemical pulp in Canada reached an all-time high, exceeding any previous peak year by about 100,000 tons. The main increase was accounted for by shipments to the United Kingdom and the United States.

Various emergent calls for war-essential needs from markets unusual for Canadian shippers, such as Australia, New Zealand, South Africa and certain Latin American countries were also met, along with every essential need in Canada.

## CANADIAN INDUSTRY STATISTICS FOR 1942

(Latest Available)

		Canada	Quebec	Ontario	British Columbia	Other Provinces
Establishments	No.	105	46	39	7	13
Pulp mills	No.	28	10	8	3	7
Pulp and paper mills	No.	50	26	15	3	6
Paper mills	No.	27	10	16	1	—
Capital employed	\$	655,598,196	348,981,976	183,701,701	58,912,740	64,001,779
Total employees	No.	38,251	18,496	11,134	4,261	4,360
Salaries and wages	\$	69,656,393	32,715,297	21,801,085	7,618,433	7,521,578
Fuel used	\$	20,382,901	9,963,843	5,762,704	1,966,380	2,689,974
Electricity purchased	\$	15,843,519	9,950,982	3,707,696	59,188	2,126,653
Power employed	H.P.	1,960,060	1,017,082	567,325	145,365	230,288
Pulp-making materials and supplies	\$	101,015,802	52,076,790	27,425,213	7,560,118	13,953,681
Pulp made	\$	192,145,062	97,632,408	51,936,704	16,243,737	26,332,213
Paper-making materials and supplies	\$	118,323,094	60,362,319	39,839,997	6,578,044	11,542,734
Paper made	\$	230,962,719	118,614,967	75,210,507	15,983,588	21,153,657
Total value of materials, supplies	\$	135,970,437	67,290,265	43,744,521	9,353,209	15,582,442
Gross value of products	\$	337,390,484	168,294,770	103,555,421	27,804,218	37,736,075
Net value of products	\$	165,193,627	81,089,680	50,340,500	16,426,441	17,337,006

"Gross value of products" represents the sum of the values of pulp made for sale in Canada, pulp made for export and paper manufactured. It does not include pulpwood, nor the pulp made in combined pulp and paper mills for their own use in making paper. The "Net value of production" is compiled by subtracting the total value of materials and supplies, fuel and electricity from the gross value of products.

## BRITISH COLUMBIA PULP AND PAPER AND ALL FOREST PRODUCTS

### ESTIMATED VALUE OF PRODUCTION

Including Loading and Freight Within the Province

	1938	1939	1940	1941	1942	1943	10-Year Av.
Pulp and Paper	\$11,066,000	\$16,191,000	\$22,971,000	\$27,723,000	\$27,457,000	\$25,597,000	\$18,675,000
All Forest Products	67,122,000	88,221,000	102,804,000	119,920,000	124,720,000	124,720,000	86,786,000

## BRITISH COLUMBIA

### Review of Pulp and Paper Production

1919 - 1943

1919-1943				—PAPER—		1943	385,875	274,722	
	—PULP—	Tons		Newsprint	Other	1942	448,272	327,474	
	Sulphite	Sulphate	Groundwd			1941	494,811	351,453	
1943				211,696	63,026	1940	438,500	330,572	
1942				252,559	74,915	1939	321,132	272,117	\$18,690,571
1941				276,000	75,453	1938	242,020	222,305	14,562,475
1940				262,144	68,428	1937	425,558	320,920	21,623,305
1939				216,542	50,870	1936	416,433	320,555	19,012,369
1938				176,639	39,348	1935	377,522	299,816	10,708,145
1937				264,000	53,000	1934	383,818	299,502	10,347,123
1936				276,710	41,443	1933	323,431	260,599	10,852,000
1935				262,123	33,287	1932	259,586	228,075	11,156,000
1934	130,176	15,630	209,359	267,406	26,777	1931	310,029	244,397	13,508,000
1933	122,263	13,715	185,451	237,107	23,492	1930	316,056	245,374	16,520,000
1932	85,419	10,889	161,502	205,050	24,051	1929	279,638	220,501	14,400,000
1931	124,521	11,744	170,432	217,562	17,709	1928	305,468	241,437	16,755,000
1930	130,462	13,055	172,539	224,928	20,446	1927	296,253	227,755	18,505,000
1929	112,925	15,647	151,066	201,009	19,492	1926	259,504	187,313	16,315,000
1928	120,413	15,050	170,005	225,477	15,960	1925	230,733	177,462	14,466,000
1927	119,005	13,700	163,548	214,010	13,745	1924	216,243	145,934	13,938,000
1926	108,381	15,000	136,123	176,924	10,389	1923	217,076	150,637	15,018,000
1925	92,514	16,856	121,363	148,201	9,261	1922	197,327	132,584	12,590,000
1924	89,839	14,403	112,001	136,281	9,653	1921	164,746	117,110	13,500,000
1923	89,878	9,952	107,266	142,928	7,709	1920	217,334	146,624	
1922	80,347	9,473	99,769	123,603	7,202	1919	189,589	130,809	
1921	86,894	9,674	100,739	124,639	7,945				
1920	68,502	6,519	89,725	110,176	6,934				
	92,299	16,380	108,655	136,832	9,792				
Source—British Columbia, Department of Lands, Report of the Forest Branch.									

Source—British Columbia, Department of Lands, Report of the Forest Branch.



# PULPWOOD: U. S. Mill Receipts Down 11% in 1943; Inventories Decline 16%

More men in woods eases eastern Canadian situation / / Prisoners being widely used but they are taboo on Pacific Coast because of union objections / / U. S. mill receipts are likely to take another 10 per cent dip this year and may prevent industry from meeting WPB production requirements.

THE general public in the United States and Canada became pulpwood-conscious in 1943. Pulpwood's importance was testified in the newspapers, on the radio and in the Congress and Commons.

Cutting of pulpwood was proclaimed an essential industry by U. S. selective service and manpower directors. Attempts to make this the law of the land, however, died a-borning as military leaders discouraged any legislative action that would tie their hands in case of unexpected losses in battle. In Canada qualified measures were taken more belatedly to recognize pulpwood cutting as an essential enterprise. All of these measures, however—including a manpower "freeze" in the Pacific Northwest woods—came after far too many woodsmen had left the forests.

Prospects were that in 1944 the manpower would again become critical and adversely affect pulpwood production.

The principal factor affecting pulpwood procurement during 1943 was labor. There was a constant drain of woodsmen from the forests, many shifting into war industries and some being drafted into the armed services, particularly in the first six months. However, toward the second half of the year publicity campaigns achieved some notable success in stimulating farmers and other woodsmen to renewed efforts to increase pulpwood output. Further, toward the close of the year some prisoners of war were made available for woods operations.

It was possible to use war pris-

oners extensively in the south and to a certain extent in the northeast. But on the Pacific Coast none were used, although thousands of husky Germans were brought to prison camps in Washington State. Government officials—not being quoted by name—said frankly that it was impossible to make use of war prisoners in the Pacific Coast woods because of the objections of the labor unions, stronger and more insistent on this point than in other sections of the country. Union spokesmen in the west were vociferous in proclaiming opposition to using prisoners, although it was not clear how this would permanently damage the unions with a serious manpower shortage.

WPB officials, continually urging

use of prisoners, had some 10,000 at work in southern and northeastern woods early this year. The Germans worked fairly well; the Italians "sang too many songs"—said the WPB officials. Incentive pay helped, however.

WPB pulp and paper officials offered to help interested mills get prisoners for labor but warned that requests should be made now, before farmers demand help for harvesting.

A mild 1943-1944 winter in the Pacific Northwest finally started that area, a great source of pulp for the east and middle west, slowly on the upgrade in wood production. The improvement was very slight and gradual. Pulp production was still far off capacity. In the middle west, some of the larger integrated mills

## U. S. PULPWOOD—RECEIPTS, CONSUMPTION, INVENTORIES (In 1,000 standard cords, roughwood basis)

Item	Calendar Year		
	1943	1942	1941
Receipts (inc. imports)	14,816	16,712	16,024
Northeast	2,900	3,353	3,445
Appalachian	1,277	1,455	1,387
South	6,166	6,320	6,090
Lake	1,916	2,741	2,913
Pacific N. W.*	2,557	2,843	2,913
Consumption	15,171	16,847	16,173
Northeast	3,211	3,484	3,476
Appalachian	1,417	1,478	1,396
South	6,006	6,502	5,941
Lake	2,271	2,416	2,346
Pacific N. W.*	2,266	2,967	3,014
Inventories (year end)	2,833	3,376	—
Northeast	812	1,112	—
Appalachian	280	423	—
South	288	118	—
Lake	941	1,313	—
Pacific N. W.*	498	410	—

\*Converted 600 bd. ft. equal 1 cord.  
Source: Forest Products Bureau, WPB.

## PULPWOOD CONSUMPTION IN CANADA (By Processes and Provinces)

(In Cords of 560 Feet)

	Mechanical		Sulphite		Other Processes		Totals	
	1941	1942	1941	1942	1941	1942	1941	1942
TOTAL	3,397,394	3,135,116	3,426,132	3,578,024	864,862	954,298	7,688,388	7,667,438
Quebec	1,919,701	1,780,192	1,527,189	1,633,068	600,180	653,086	4,047,070	4,066,346
Ontario	821,312	797,193	968,489	1,038,998	112,000	121,983	1,901,801	1,958,174
British Columbia	226,439	166,128	327,557	283,585	82,663	92,015	636,659	541,728
Other Provinces	429,942	391,603	602,897	622,373	70,019	87,214	1,102,858	1,101,190

Official Canadian Report.



were well off again, with 18 or 20 months supply of wood. But in the New England and northeastern states, inventories were practically gone and the wood situation was most serious. In the south inventories also were low.

#### Wood Receipts Off

● Pulpwood receipts in 1943 at United States mills were about 1,900,000 cords (over one billion board feet—Pacific Coast measure) less than 1942 receipts of 16,712,000 cords. This was an eleven per cent drop. But even more serious was the 16 per cent decline in pulpwood inventories from 3,376,000 cords at the close of 1942 to 2,833,000 cords at the end of 1943.

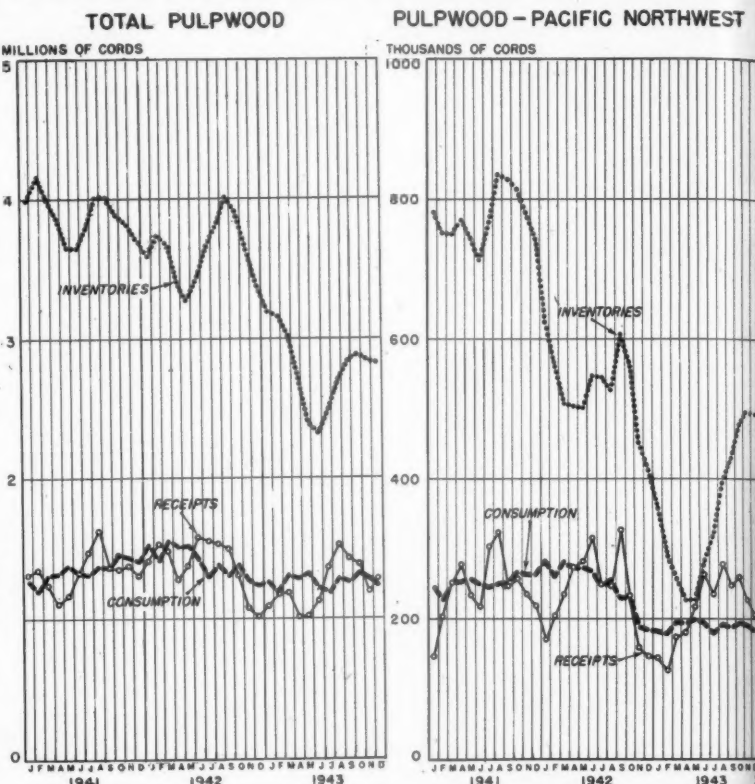
Receipts of the wood at the mills was 24 per cent off 1942 figures at the end of the first six months of 1943. The newspaper-sponsored campaign to get out the farmers and other individual wood-cutters and some belated eleventh-hour cooperative action by some of the government agencies, pulled the 1943 figure up to only an 11 per cent drop for the entire year.

Analysis of total pulpwood receipts (including imports) by regions during the year 1943 compared with 1942 discloses that Lake States receipts showed the largest decline, 30% (1,916,000 vs. 2,741,000 cords); the Southern Region recorded the smallest decline, 2% (6,166,000 vs. 6,320,000).

#### Pulpwood Consumption

● Total consumption of pulpwood for 1943 was 15,171,000 cords, about

(The pulpwood charts below show only total and Pacific Coast figures for the United States, as compiled by the U. S. WPB.)



a 10% decrease under 1942 consumption of 16,847,000 cords. The largest decrease in consumption (24% below 1942) was registered in the Pacific Northwest (2,266,000 vs. 2,967,000).

#### U. S. PULPWOOD CONSUMPTION BY SPECIES

In Cords of 600 Bd. Ft.

	1937	1940	1941
Southern Pine	2,658,949	5,013,478	6,402,000
Spruce			
Domestic	2,010,720	2,045,519	2,255,000 <sup>1</sup>
Imported	826,528	963,195	1,420,000
Hemlock			
Domestic	2,264,565	2,636,118	3,563,000 <sup>2</sup>
Imported	37,447	152,653	315,000
Poplar			
Domestic	441,401	489,866	741,000 <sup>3</sup>
Imported	90,365	108,809	225,000
Balsam Fir			
Domestic	320,715	388,577	— <sup>4</sup>
Imported	71,447	83,609	—
Jack Pine	300,786	415,202	551,000
Beech, Birch, Maple	257,410	298,895	344,000
White Fir	135,384	213,445	— <sup>5</sup>
Total inc. other species and waste	10,393,800	13,742,958	16,474,000
Cost of Total	\$82,884,799	\$109,739,958	—

<sup>1</sup>Includes Balsam Fir and excludes Western Spruce.

<sup>2</sup>Includes Western spruce and white fir.

<sup>3</sup>Includes Aspen, Cottonwood and other soft hardwoods.

<sup>4</sup>See footnote 1.

<sup>5</sup>See footnote 2.

In 1942, the War Production Board reported 16,847,000 cords of pulpwood consumed in United States. Comparable 1941 figure is 16,173,000 cords consumed. These figures represent amount of pulpwood converted to rough form. In table is a combination of rough and peeled pulpwood consumed. Source: 1937-1940, U. S. Bureau of Census. 1941, U. S. Forest Service.

Of total pulpwood consumption of 10,816,466 cords in 1939, 10.8% was used in pulp mills of Maine, 17.8% in Washington; 10.2% in Wisconsin.

Although total inventories showed a 16% decline, two regions (the Southern and Pacific Coast Regions) showed nominal inventory increases (Southern region up 169,000 cords from end of 1942 to end of 1943; Pacific Coast region up 81,000 cords in similar comparison); while the other three regions, namely, the Lake States, Northeast, and Appalachian, registered general inventory decreases.

Overall pulpwood receipts (including imports) during 1944 are estimated at 13,102,000 cords, another drop of 10 per cent under 1943 figures. This is far short of meeting anticipated needs for paper and paperboard.

Pulpwood requirements as established by the War Production Board in the first quarter indicated a demand for 16,200,000 cords for entire year 1944.

Faced with the new Selective Service decisions affecting men under 26 years of age and progressive age categories afterwards, and in particular proposed changes in farmer deferments, United States pulpwood-cutting operations might possibly have a reversal of the present more favorable trend. Conditions dictated the necessity of in-

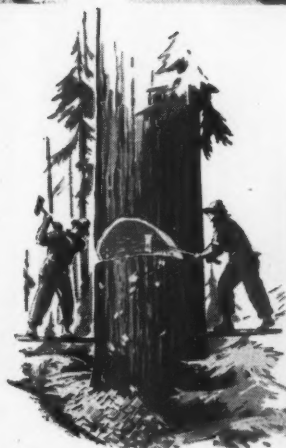


# BEAR BRAND

CHEMICALS FOR THE WESTERN PAPER INDUSTRY



Ammonia  
Caustic Soda  
Zinc Hydrosulphite  
Chlorine  
Sulphur Dioxide



**DOW**

CHEMICALS INDISPENSABLE  
TO INDUSTRY AND VICTORY

GREAT WESTERN DIVISION  
THE DOW CHEMICAL COMPANY

Seattle SAN FRANCISCO, CALIFORNIA Los Angeles



tensifying the use of prisoners of war, returning former workers to their jobs in the woods, obtaining the cooperation of farmers in continuing to cut as much pulpwood as possible, even during the early agricultural season, importing foreign labor and recruiting more Canadian woodsmen. It was only through such positive measures that the forthcoming probable drain in woods labor could be met, and the all-important pulpwood made available to fill future requirements of

the expanding war needs for pulp and paper.

January-February over-all 1944 pulpwood receipts (2,803,000 cords) at U. S. mills were 23% higher than in the first 2 months of 1943 (2,277,000 cords). Generally speaking, the 1943-44 winter was the most favorable in a decade, and considerable pulpwood moved in from Canada in Eastern United States, but the virtual embargo continued in the Far West. In Eastern

Canada, under ideal conditions, about 8,000 more men were in the woods this winter.

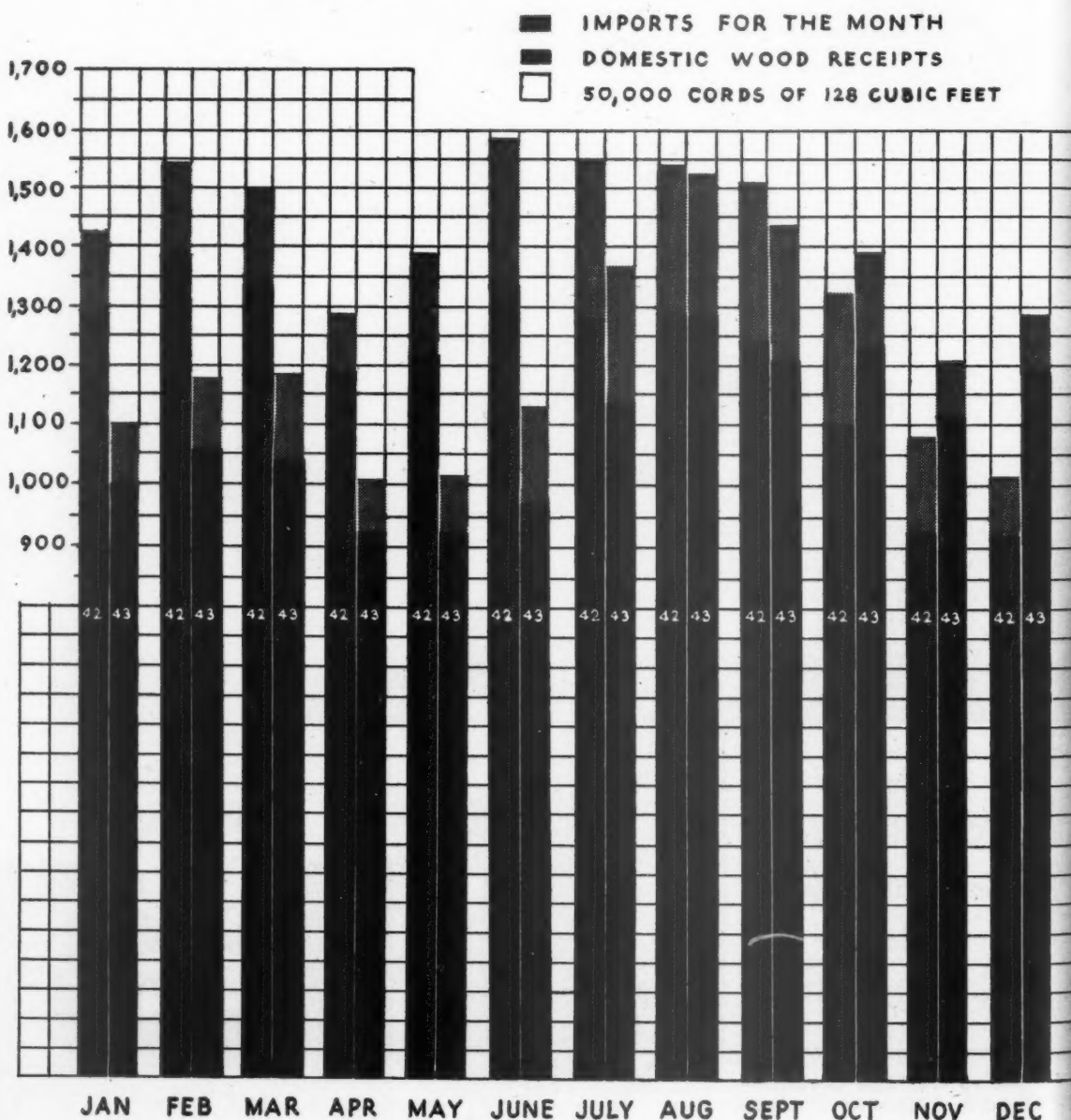
It was expected that for the second quarter of 1944 a decline under first quarter pulpwood receipts could be anticipated. It was likely that the manpower shortage would become more acute during that period.

#### Price Raises

● In an effort to stimulate pulpwood production, the U. S. Office

## 1942-'43 PULPWOOD RECEIPTS AT U.S. MILLS

W.P.B. FIGURES IN THOUSANDS OF CORDS





PAPER . . . America's

6<sup>th</sup> Industry

## ANOTHER NEW USE FOR PAPER

(NEWS ITEM: Paperboard garbage containers are being manufactured to replace those made of critical materials.)

A heavy-duty paperboard garbage container has been developed in answer to a search for containers to replace those made from critical materials. Made of special asphalt-treated paperboard, these containers are completely finished by the manufacturer and shipped in ready-to-use form.

Many unique war uses have been found for paper. When the Victory is won, paper garbage containers will no doubt continue to be used. Housewives will have grown accustomed to their added economy and sanitation.

Many practical and technical advancements have been developed out of our war work activities. These are being correlated and utilized by our Research and Development Committee and will result in a number of improvements and more efficient equipment in our Post-War Paper-Making Machinery.

The Puseyjones Flow-Spreader improves the delivery of stock to the fourdrinier or cylinder wet end. Formation is improved and production is increased.

Puseyjones men and production facilities are on war work. However, since the WPB has declared the Paper Industry essential, we are in a better position to supply vital repair and replacement parts to keep present equipment operating efficiently.

Puseyjones engineers will welcome the opportunity to aid you with your post war problems. We have prepared three informative articles which are yours for the asking—"The Post-War Fourdrinier," "Development of Stream-Flow Vat System," "The Flow Spreader." Ask for reprints by name.

### THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery  
Wilmington, Delaware, U. S. A.



TRY  
ditions,  
in the  
ne sec-  
under  
receipts  
likely  
would  
at pe-  
pulp-  
Office



## Domestic and Foreign Pulpwood Consumed in the United States

by Decades, 1860-1939

Decade	Total 1,000 cords	Domestic 1,000 cords	Imported 1,000 cords	Per Cent of Total Imported
1860-69	15	15	.....	.....
1870-79	215	215	.....	.....
1880-89	3,120	3,120	.....	.....
1890-99	12,845	11,000	1,845	14
1900-09	30,758	24,601	6,157	20
1910-19	47,981	39,248	8,733	18
1920-29	62,277	50,780	11,497	18
1930-39	79,678	70,598	9,080	11
Total	236,889	199,577	37,312	16

Source: U. S. Forest Service.

of Price Administration got around finally to raising ceiling prices in all producing sections of the country. It started out in 1943 by raising the prices in the Lake States. This past winter, price increases were granted in the south and northeastern states.

From Virginia to Texas wood production had dropped 35 per cent in January and February of this year as compared with 1943 figures when the OPA decided to grant increases ranging from 50 cents a cord in Virginia and North Carolina to \$1.10 in Texas. In the Northeast, where some producers had been unable to cover their costs, price raises up to \$2.75 a cord were allowed.

On the Pacific Coast in early April of this year, No. 2 hemlock was raised from \$20 to \$21.50 per 1,000 feet (560 ft. to standard cord) and other grades went up \$1 to \$3.

## Pulpwood Timber Cut In British Columbia F. B. M.

	1943	1942
Spruce	336,554,454	177,081,686
Hemlock	589,644,840	498,310,088
Balsam	134,994,151	97,794,723
Fir	1,218,018,771	1,454,653,378

The totals represent the cut for all purposes and do not differentiate between lumber, plywood, pulpwood, etc.

## British Columbia Log Exports (All Species)

	Feet Board Measure
1943	*78,656,045
1942	156,011,950
1941	307,079,906
1940	217,527,358
1939	312,733,462
1938	259,673,082
1937	270,474,094
1936	218,828,835
1935	235,291,766
1934	172,735,751
Ten-year average	222,901,225

\*Of this total 77,664,670 F.B.M. were exported from Crown grants carrying the export privilege; 991,375 F.B.M. were exported under permit from other areas.

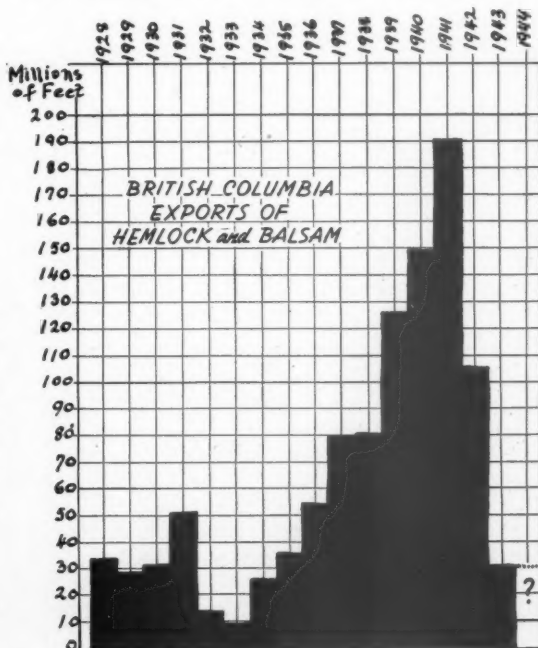
## 1942-43 PULPWOOD ANNUAL RECEIPTS AT U. S. MILLS

Domestic	Cords	(Board Feet)
1943	13,096,000	(7,333,760,000)
1942	14,480,000	(8,108,800,000)
1941	13,744,000	(7,696,640,000)
Imports		
1943	1,718,000	(962,080,000)
1942	1,232,000	(1,249,920,000)
1941	2,281,000	(1,277,360,000)
Overall		
1943	14,816,000	(8,295,840,000)
1942	16,712,000	(9,358,720,000)
1941	16,025,000	(8,974,000,000)

## Canadian Wood Exports To Puget Sound Mills

● Rise and fall of pulpwood log exports from British Columbia during the past seventeen years are illustrated in the accompanying graph.

The decline in recent years has been due not to any lessening in demand, but to the policy of Canada's Timber Control in retaining for the use of Canadian



## Production for War

● One cord (560 bd. ft.) of pulpwood produces any one of the following quantities of war products: 4,200 weatherproof packages to carry life saving blood plasma, 3,336 containers for first aid kits with emergency battle dressing and sulfa tablets, 16,444 hospital waddings for field treatments and emergency operations, 1,500 fiber parachutes for bombing flares or food supplies, 1,440 anti-tank mine covers, 2,148 watertight jackets for 37 mm. shells, 800 warm vests for aviators in high altitudes, 1,560 containers for K-rations, 900 tough multi-wall commando bags for bulk foods and supplies, 1,200 yards of ordnance wraps to protect airplane engines from rust, 6,120 military maps, 72 protective rings for 1,000-pound bombs or 1,800 grommets for the 5-inch shells.

mills a sufficient supply to maintain production of pulp and paper.

Most of the pulpwood log exports from British Columbia have been to the United States, the mills of the Puget Sound area providing the principal market.

During the last two or three years British Columbia's forest industries have been acutely aware of a shortage of labor which has been reflected in a continuing scarcity of logs. Shutdowns of pulp mills for two or more weeks at a time have been a comparatively frequent occurrence in British Columbia.

The Canadian Timber Control recently announced that 32,500,000 feet of hemlock logs would be made available during the calendar year 1944 for export to the United States, and it is understood that there is an outside chance that this figure will be increased later in the year, depending on the trend of production in the woods. The volume authorized for export is slightly in excess of the exports for 1943.

**HOW CANADIAN PULPWOOD EXPORTS TO American mills on the Pacific Coast have fallen off since a limited Canadian embargo was imposed in 1942 is shown here.** Some American mills on Puget Sound argue they were located in that area on the assumption that they could get part of their raw material from B. C. But manpower shortages and demand for hemlock for lumber cut heavily in Canadian production of pulpwood. A new U. S.-Canadian agreement calls for release of only 32,500,000 ft. (about 58,000 cords) this year, compared to only 30,000,000 ft. in 1942. That will just about fill the space marked by the question mark under 1944.



TRY

pulp-  
follow-  
4,200  
life  
liners  
battle  
hos-  
s and  
par-  
food  
overs,  
mm.  
rs in  
for  
com-  
sup-  
wraps  
rust,  
ective  
1,800

n pro-

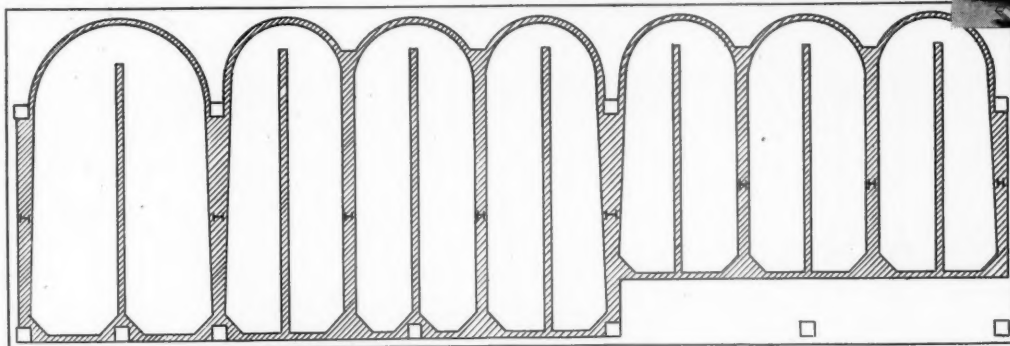
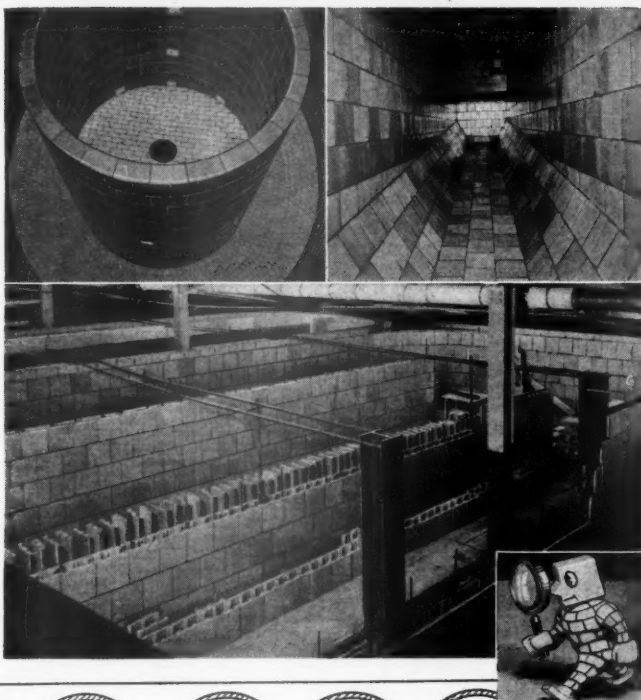
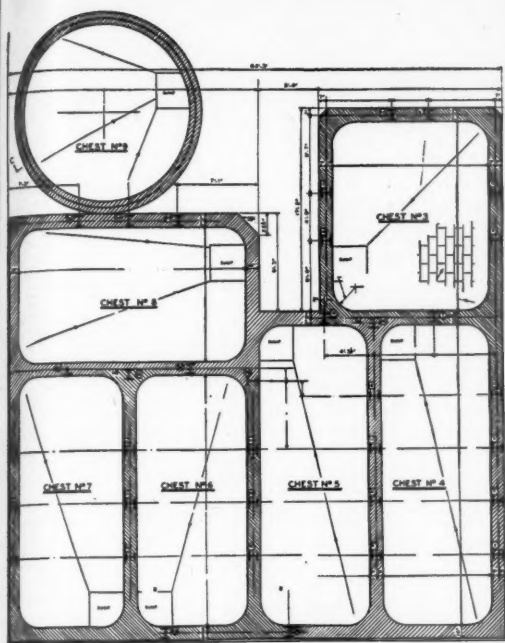
s from  
United  
d area

years  
s have  
labor  
inuing  
pulp  
a time  
nt oc-

recently  
hem-  
e dur-  
ort to  
rstood  
at this  
year,  
ion in  
d for  
exports

DIAN  
D EX-  
erican  
acific  
er off  
Cana-  
was  
42 is

mills  
d ar-  
e lo-  
ea on  
that  
part  
terial  
man-  
and  
nlock  
cut  
adian  
pulp-  
J. S.  
ment  
e of  
0 ft.  
ords)  
pared  
0,000  
'That  
fill  
ed by  
mark



## THE CORRECT LINING IS VITAL FOR POST-WAR MILL OPERATION

Washer vats, stock storage chests, circulating and mixing chests, bleaching tanks, sludge tanks, etc. will require relining or redesigning in order to cope with post war operating conditions. That the new linings are correct in design and the materials the best obtainable will be vital factors in the success of mill operation.

For sixty years STEBBINS has worked closely with operators of pulp and paper mills. Our designers are thoroughly familiar with the chemical and mechanical requirements of the various processes.

The materials used are made according to STEBBINS specifications, developed over years of practical ex-

perience in the field; plus a consistent research program carried on in our own laboratory primarily to develop new materials to better meet operating conditions.

Our erectors know their way about the mills thus permitting your own workmen to carry on their jobs without interruption. Every installation is covered by a lump sum contract.

When a lining or tile tank job comes up, consult STEBBINS. There is no obligation involved and you secure the benefit of the experience of an organization that has devoted sixty years exclusively to lining and tile tank problems.

SEMO

# Stebbins Engineering Corporation

TEXTILE TOWER

SEATTLE, WASHINGTON



## UNITED STATES EXPORTS OF PULPWOOD, WOOD PULP, PAPER, PAPERBOARD AND CONVERTED PAPER PRODUCTS

Item	Unit of Measurement	1938	1939	1940	1941	1942	1943
Pulpwood	Cords	52,894	50,165	61,932	72,733	73,516	76,412
Sulphite wood pulp, bleached: rayon and special chemical grades	Tons	(a)	48,232	114,800	33,892	28,576	22,884
Sulphite wood pulp, bleached: other	Tons	(b)	90,262	102,415	77,241	78,431	84,991
Sulphite wood pulp, unbleached	Tons	33,976	40,915	72,290	77,572	98,406	89,691
Soda wood pulp	Tons	2,729	4,013	10,006	2,174	3,278	5,341
Sulphate wood pulp, unbleached	Tons	(c)	14,816	158,822	118,226	140,289	120,552
Sulphate wood pulp, bleached	Tons	(d)	(d)	18,205	10,474	28,156	16,344
Screenings and other wood pulp	Tons	(e)	13,517	4,400	6,656	1,012	897
Rags for paper stock: Valued \$50 or over per ton	Tons	6,869	6,549	2,919	2,919	2,500	1,639
Rags for paper stock: Valued under \$50 per ton	Tons	4,053	4,421	7,264	7,559	3,988	1,234
Other paper stock	1,000 lbs.	58,233	102,891	150,691	75,687	72,804	35,374
Newsprint paper	1,000 lbs.	11,291	26,991	87,833	140,530	83,190	70,512
Book paper, not coated	1,000 lbs.	18,352	30,773	85,292	82,611	42,877	44,829
Cover paper	1,000 lbs.	1,803	1,665	1,973	2,530	2,329	2,607
Greaseproof and waterproof paper	1,000 lbs.	7,840	9,240	18,357	19,492	30,350	34,747
Ordering and old newspapers	1,000 lbs.	142,969	171,270	219,382	182,113	10,040	11,084
Wrapping paper, except kraft	1,000 lbs.	30,189	35,216	64,101	88,274	29,779	25,255
Kraft wrapping paper	1,000 lbs.	14,343	19,227	86,394	51,688	26,226	30,460
Surface-coated paper	1,000 lbs.	8,071	14,152	21,561	20,691	31,029	18,302
Cigarette paper, cigarette books, and book covers	1,000 lbs.	(g)	(g)	(g)	(b)	1,130	14,099
Other tissue and crepe paper	1,000 lbs.	(i)	11,365	(1)	25,640	(3)	28,420
Toilet paper	1,000 lbs.	10,193	10,536	15,124	17,398	9,378	19,188
Paper towels and napkins	1,000 lbs.	4,098	5,960	5,723	6,052	4,603	3,680
Kraft container board	1,000 lbs.	(a)	85,484	202,152	69,196	86,129	46,091
Other board	1,000 lbs.	83,221	26,111	101,703	58,621	32,613	29,303
Bristols and Bristolboard	1,000 lbs.	2,605	2,592	4,250	5,106	5,366	7,731
Other paperboard	1,000 lbs.	(k)	39,328	32,948	110,059	83,520	49,168
Sheathing and building paper	1,000 lbs.	15,035	13,595	12,031	20,250	14,230	16,016
Fiber insulation board	1,000 sq. ft.	45,143	44,909	35,884	33,443	22,433	15,693
Wallboard of paper or pulp	1,000 sq. ft.	12,801	26,057	48,116	45,734	29,721	8,658
Blotting paper	1,000 lbs.	2,068	3,128	3,404	4,001	3,072	2,126
Filing folders, index cards, and other office forms	1,000 lbs.	1,130	1,221	1,266	1,575	1,835	2,656
Papeteries	1,000 lbs.	269	261	412	377	137	95
Writing paper	1,000 lbs.	27,308	37,972	99,218	64,093	55,237	91,373
Paper hangings (wallpaper)	1,000 rolls	1,427	1,284	1,198	1,403	841	597
Paper bags: heavy shipping sack-type	1,000 lbs.	(a)	5,218	10,154	8,742	9,173	10,648
Paper bags: other	1,000 lbs.	(1)	14,861	13,125	12,517	8,826	8,886
Boxes and cartons: heavy fiber shipping containers	1,000 lbs.	(a)	10,807	14,896	18,647	47,178	18,472
Boxes and cartons: other	1,000 lbs.	(a)	14,270	5,565	5,904	9,279	14,834
Envelopes	1,000 lbs.	961	1,079	1,360	1,459	854	1,140
Vulcanized fiber sheets, strips, rods, and tubes	1,000 lbs.	3,791	4,793	4,609	6,057	8,952	9,677
Cash-register and adding-machine paper	1,000 lbs.	4,611	5,509	5,254	1,659	3,155	3,033
Other paper and paper products	1,000 dollars	3,588	4,473	5,101	6,316	5,432	5,107

(a) Not shown separately until 1939.  
 (b) Includes rayon and special chemical grades.  
 (c) Included under "other wood pulp" prior to 1939.  
 (d) Included under "other wood pulp" prior to 1940.  
 (e) Includes bleached and unbleached sulphate pulp.  
 (f) Includes bleached sulphate pulp.  
 (g) Includes bleached sulphate pulp.  
 (h) Figures for Nov. 11-Dec. 31, 1941, incl.  
 (i) Includes cigarette paper.  
 (j) Includes bleached sulphate pulp.  
 (k) Not shown separately until Nov. 11, 1941.  
 (l) Figures for Nov. 11-Dec. 31, 1941, incl.  
 (m) Includes heavy fiber shipping containers.  
 (n) Includes heavy fiber shipping containers.

Sources: Foreign Commerce and Navigation of the United States; Bureau of the Census; United States Department of Commerce.

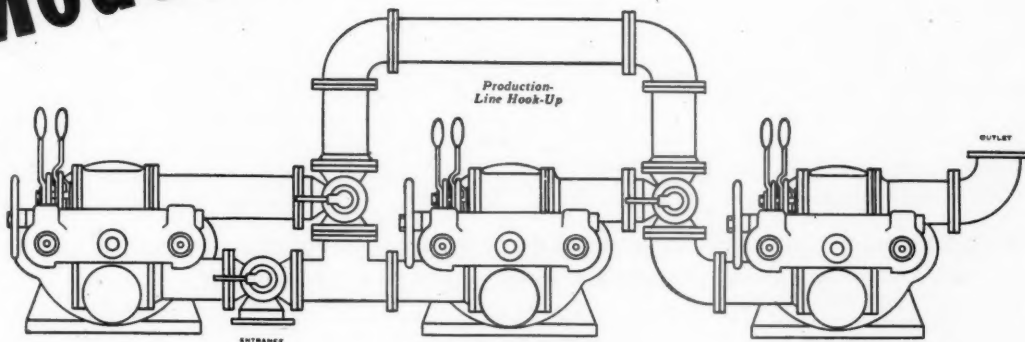


(1) Includes heavy shipping sack-type bags.  
(2) Includes heavy fiber shipping containers.  
(3) Figures for Nov. 11-Dec. 31, 1941, incl.  
(4) Includes cigarette paper.  
(5) Includes bleached and unbleached sulphate pulp.  
Source: Foreign Commerce and Navigation of the United States Bureau of the Census, United States Department of Commerce.



**"STOCK-MAKER"**

# Plan for Modern Stock Preparation



**CONTINUOUS-FLOW TREATMENT**  
**NO BEATERS — NO BATCH TREATMENT — NO JORDANS**

ASK FOR OUR NEW FOLDER  
IT SHOWS  
A MODERN INSTALLATION

**MORDEN MACHINES CO.**

PACIFIC BUILDING  
PORTLAND 4, OREGON

It's  
**MODERN**  
If It's  
**MORDEN**



## EXPORTS—IMPORTS: Interesting Trends Revealed As Censorship Veil Is Lifted

Department of Commerce reveals that wood pulp exports in 1943 were 300,700 tons, an increase of 116 per cent over 1939. Newsprint exports were up 161 per cent. U. S. Pulp Producers estimates U. S. pulp imports in 1943 as showing slight increase over 1942. Swedes solicit customers.

POSSIBLE post-war trends in export of United States and Canadian pulp and United States paper products are now questions of great interest in the industry. The prospect of imports of pulp into the United States is of considerable concern to Americans and Canadians who are producing for the market.

There were trends before the war that were halted or contorted when global war began. There have been wartime trends that might possibly survive. Lend-lease and the good neighbor policy towards Latin American nations are factors whose influence are expected to over-reach into the era of peace.

The United States Department of Commerce, after about a three-year censorship, has again begun to publish statistical tables. With this article is an interesting table showing U. S. exports of pulpwood, wood pulp, paper, paperboard and certain converted products in the past six years.

Total wood pulp exports in 1943 were 300,700 tons, registering an

increase of 116% over 1939 (139,504 tons), according to recent official figures released by the Department of Commerce. The most notable increase was in unbleached sulphate pulp, 714%, with unbleached sulphite gaining 119%, bleached sulphite, paper grades, 94%, and soda pulp, 33%. On the other hand, exports of bleached sulphite, rayon and special grades, in 1943 were 53% below 1939.

### U. S. WOOD PULP EXPORTS

	Quantity	Value
	Short Tons	
1943	260,826	
1942	*383,000	
1941 (9 mos.)	246,986	\$15,801,270
1940	480,362	29,649,300
1939	139,504	6,493,140
1938	140,484	9,986,826
1937	302,050	19,891,483
1936	193,485	10,600,176
1935	171,710	8,632,971
1934	142,931	7,005,559
1933	79,191	3,113,883
1932	47,860	2,037,553
1931	53,307	2,405,642
1930	48,426	2,070,553

\*Estimated.

Source for all other figures: U. S. Dept. of Commerce.

Total exports of the major categories of paper were 258,063 tons in 1943 compared with 258,586 tons in 1939, a decline of a fraction of a per cent. Newsprint exports were 161% higher in 1943 than in 1939. As a group, wrapping papers registered a 42% gain in 1943 over 1939, with greaseproof and waterproof papers rising 276% and kraft wrapping 58%, but wrapping, except kraft, falling 28%.

Total paperboard exports in 1943 were 10% below 1939. While kraft container board exports dropped 46% in 1943 compared with 1939, the other types of paperboard increased during the same period, as follows: bristols and Bristol board, 198%, other paperboard, 55%, and other boxboard, 4%. Of the remaining classes of paper which increased in 1943 over 1939, writing paper gained 141%, cover paper, 57%, book paper, not coated, 46%, and surface coated paper, 29%. The classes which decreased in the same period were: overissue and old newspapers, 94%, cash register and add-

### PROPORTION OF UNITED STATES MARKET FOR PULP SUPPLIED BY AMERICAN PULP MILLS AND FOREIGN PULP MILLS\*—1941-1942-1943

TOTALS By Grades.	1941†		1942†		1943†	
	Pulp Produced By U. S. Mills for Sale in Domestic Market—1941	Pulp Imported Into the United States 1941	Pulp Produced By U. S. Mills for Sale in Domestic Market—1942	Pulp Imported Into the United States 1942	Pulp Produced By U. S. Mills for Sale in Domestic Market—1943	Pulp Imported Into the United States 1943
Total—All Grades	1,723,584	1,145,000	1,731,599	1,200,000	1,313,067	1,252,292
Total—Sulphite	1,228,530	740,000	1,209,319	800,000	904,651	842,005
Bleached Sulphite	767,970	369,000	841,778	370,000	710,340	361,708
Rayon	196,564	122,000				
Other	571,406	267,000				
Unbleached Sulphite	460,560	351,000	367,541	430,000	194,311	480,297
Total—Sulphate	319,341	176,000	369,794	157,000	264,415	153,139
Bleached Sulphate	72,968	60,000	76,472	52,000	53,296	62,000
Unbleached Sulphate	246,373	116,000	293,322	105,000	211,119	91,139
Total Groundwood	57,862	204,000	46,898	212,000	48,859	213,370
Total Soda	111,200	17,000	98,857	19,000	87,944	19,892
Total Semi-Chemical	6,513		3		35	
Total—Miscellaneous, Damaged and Off-Quality			6,728		7,163	23,886

\*Table prepared by Pacific Pulp & Paper Industry from United States Pulp Producers Association data on wood pulp production, shipments and stocks;

†"Pulp Produced By U. S. Mills for Sale in Domestic Market" includes that part of the stocks on hand at the end of the year intended for future shipment to domestic buyers.

†1941 and 1942 figures estimated by United States Pulp Producers Association.

†1941, 1942 and 1943 figures estimated by United States Pulp Producers Association.



# UNITED STATES WOOD PULP IMPORTS

Quantity and Value

1935 - 1943

	Chemical Pulp		Mechanical Pulp		Total Pulp	
	Short Tons	Value	Short Tons	Value	Short Tons	Value
1943	*1,038,922		*213,370		*1,252,292	
1942	*988,000		*212,000		*1,200,000	
1941 (12 months)	*941,000		*204,000		*1,145,000	
1941 (9 months)	674,320	\$42,831,566	136,759	\$3,724,960	811,078	\$46,556,526
1940	1,053,660	55,481,017	170,909	4,712,649	1,224,569	60,193,666
1939	1,798,459	70,659,074	227,954	5,218,752	2,026,413	75,877,826
1938	1,551,917	69,181,811	170,470	3,592,369	1,722,387	72,774,180
1937	2,176,343	93,955,854	218,422	4,342,168	2,394,765	98,298,022
1936	2,050,051	78,839,776	227,778	4,051,224	2,277,829	82,891,000
1935	1,743,602	67,483,566	190,041	3,277,385	1,933,643	70,760,951

\*Estimated by U. S. Pulp Producers Association.

By Quantity in Long Tons

1922 - 1943

	Bleached Sulphite Long Tons	Unbleached Sulphite Long Tons	Bleached Sulphate Long Tons	Unbleached Sulphate Long Tons	Total Chemical Pulp Long Tons	Mechanical Pulp Long Tons	Total Grades Pulp Long Tons
1943**	322,953	428,836	55,357	81,374	888,520	190,508	1,079,028
1942**	330,410	383,990	46,436	93,765	882,284	189,316	1,071,600
1941*	317,225	276,240	50,176	99,156	755,238	153,170	908,408
1940	314,150	340,155	75,795	199,654	940,435	153,161	1,093,596
1939	423,379	590,445	96,669	487,727	1,606,214	203,096	1,809,483
1938	334,283	607,504	81,682	387,314	1,410,449	144,408	1,554,857
1937	465,372	835,929	101,682	565,718	1,968,701	198,545	2,167,246
1936	465,607	715,128	93,059	568,827	1,842,621	207,050	2,070,547
1935	383,475	618,872	75,600	470,329	1,557,026	169,707	1,726,732
1934	355,484	603,117	48,275	429,853	1,443,351	169,084	1,612,615
1933	400,633	643,003	36,622	461,890	1,545,994	187,750	1,733,744
1932	311,046	508,088	23,366	310,659	1,154,907	168,272	1,323,179
1931	319,518	540,478	29,683	344,612	1,237,600	188,086	1,425,686
1930	322,886	665,049	19,533	357,551	1,369,327	267,193	1,636,520
1929	334,235	701,456	15,364	384,005	1,441,110	244,162	1,785,272
1928	307,771	640,660	14,590	381,256	1,351,005	222,499	1,573,504
1927	311,130	613,856	10,789	341,162	1,280,285	219,285	1,499,570
1926	294,818	628,923	16,147	334,803	1,278,548	271,213	1,549,761
1925	286,976	579,284	17,419	306,073	1,191,875	295,618	1,487,493
1924	272,370	562,020	27,613	277,994	1,142,123	219,571	1,361,694
1923	250,580	461,853	15,422	233,696	967,869	267,527	1,235,396
1922	213,093	422,700	19,440	275,504	931,992	192,688	1,124,680

Source: 1922-1941 U. S. Department of Commerce, Bureau of Foreign &amp; Domestic Commerce.

\*1941 Figures available for nine months of 1941 only.

\*\*Estimates. Due to war measure figures not available.

ing machine paper, 45%, and blotting paper, 32%.

Exports of converted paper products, particularly fiber shipping containers and heavy shipping sack type bags, increased 71% and 104%, respectively, in 1943 over 1939.

The trend toward greater industrialization in Latin America is apparent from projects to expand their domestic production of pulp and paper. A new pulp and paper mill in Brazil, which will be the largest in South America, will have a newsprint capacity nearly sufficient to meet Brazil's requirements for this paper. Newsprint imports into Brazil have heretofore accounted for 80 to 85% of total paper imports.

## U. S. Pulp Imports

During the ban on Department of Commerce export and import figures, the U. S. Pulp Producers continued to issue their estimates. Pulp imports, as estimated by the USPPA, were 1,252,000 tons in 1943, an increase of 4.3 per cent over 1942. This was nearly ten per

cent over the 1941 figure.

The estimate of last year's imports is apparently based on receipts of wood pulp from Canada and Newfoundland, because although official data are lacking, it is generally accepted within the trade that no pulp came into the United States during the past year or the year before from any European country. Some limited tonnage is believed to have been received from Newfoundland, but the principal source of wood pulp supply in the past two years has been the Dominion of Canada.

Since imports last year registered a rise over the year preceding, as did those in 1942 over 1941, it seems that Canada succeeded in further filling the gap created by the lack of supplies from across the Atlantic by providing an increased amount of pulp so urgently needed by mills in the United States.

The significant comparison of 1943 pulp imports is not with the year before, nor with 1941, but with importations four years ago or in

1939, prior to the cutting off by the war of the European source of pulp supply. During 1939, total pulp imports into the United States, including both chemical and mechanical grades, amounted to 2,026,413 short air dry tons. Thus, last year's receipts of 1,252,000 tons represented a tremendous decline of 774,413 tons, or 38.2 per cent, from the pre-war level. In other words, only a little better than one ton of pulp was received by the American consuming market from sources outside the country as against two tons in 1939 prior to the war.

Contrasted with the record pulp importations into the United States in any year, or 2,394,765 tons of all grades in 1937, last year's receipts of pulp from foreign origins represented a drop of 1,142,765 tons, or 47.7 per cent. In short, the 1943 imports were only a trifle more than one-half the tonnage received in the year of maximum pulp importations into the United States.

What Sweden will do after the



war became a matter of lively conjecture this past six months with the establishment of a Swedish sales headquarters in New York. Goesta Hall, representing the Swedish producers, told American mill executives that Sweden has a stockpile of more than 400,000 tons (mostly sulphite but about 40% sulphate pulp) and that he hoped to start shipments this year.

Some authorities in the east believe that there will be plentiful markets for all pulp with a great expansion of the industry after the war. It is possible that rehabilitation of Europe will bring such a great demand for both wood and pulp from European producers that there will be no great supply of Scandinavian pulp available for North and South America. The industrial advance of Russia may create a big demand for their own and other European wood and pulp. The slightest margin of increase in literacy and standards of living in the Far East could create a huge market for North American pulp and



paper industries in that part of the world.

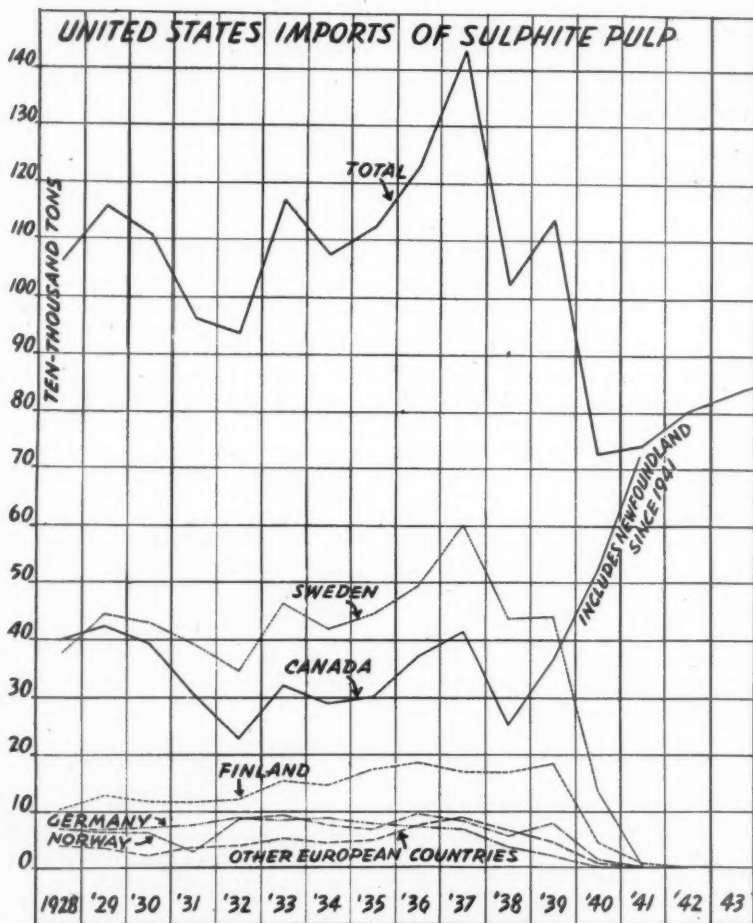
#### EXPORT TRENDS

Beginning in 1939 the United States experienced an upturn in export demand for wood pulp, paper, and paper products. The Latin American countries began to seek larger supplies from the United States. To illustrate, during 1937 (peak production year for Scandinavian countries), Sweden exported 132,219 short tons of wood pulp to Latin American markets, Norway supplied 25,037 tons, and Finland exported 57,617 tons, while the United States shipped 5,511 tons. In 1939 United States wood pulp exports to the American republics amounted to 22,613. After the outbreak of the war in 1939 and the subsequent cutting off of European supplies, especially wood pulp from the Scandinavian countries, only the United States and Canada remained as significant sources of supply. In 1940 the United States shipped 92,085 tons of pulp to the other American republics.

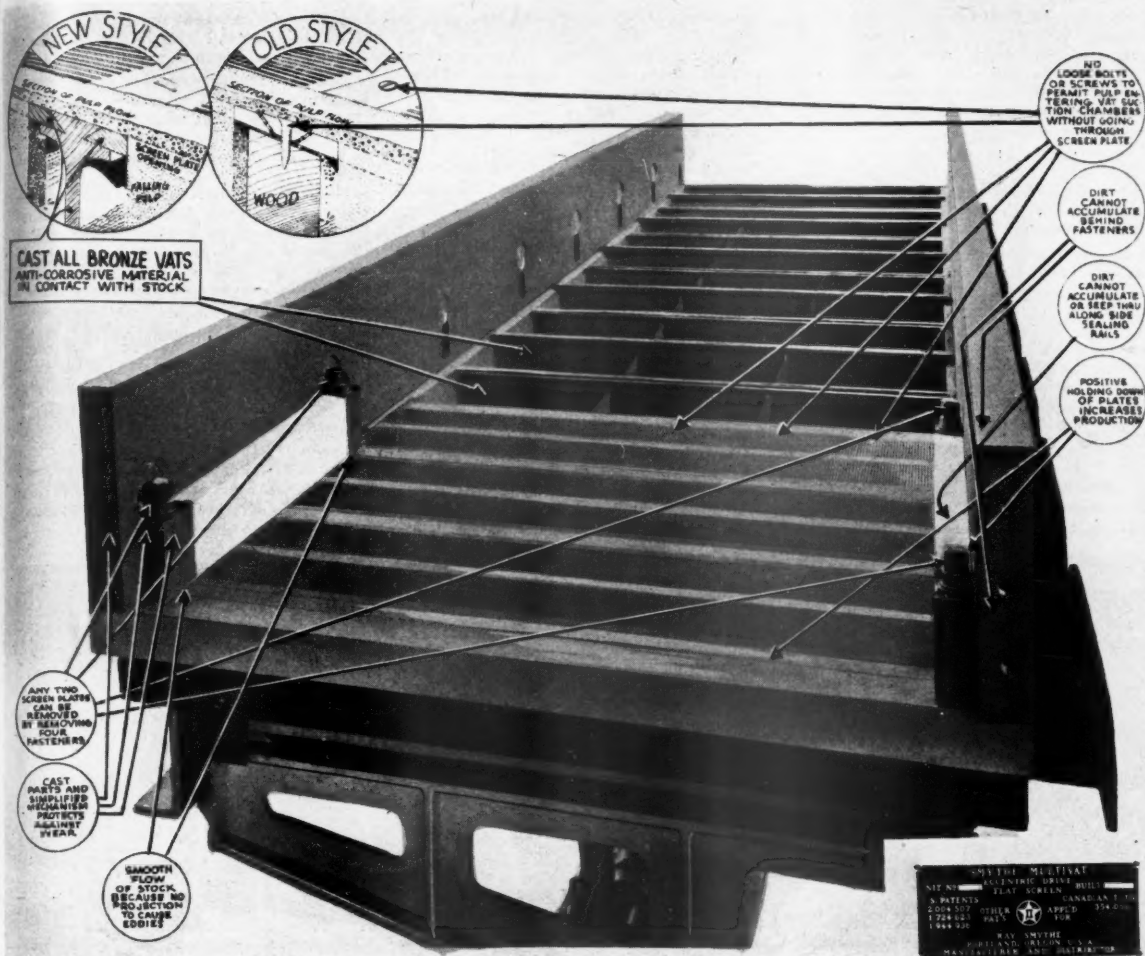
Beginning with 1941 United States exports of pulp and paper were influenced more and more by wartime conditions. Principal among such factors were shipping space and shortages in supply in the United States. Distinctly different trends are shown in exports of pulp as compared with paper during the 5-year period 1939 through 1943.

In the case of wood pulp, most non-belligerent importing countries, such as Brazil, Chile, and Argentina purchased pulp in large quantities in 1940. They did this in view of the serious proportions which the European conflict was reaching at that time and the uncertainty regarding future market supplies of pulp. During 1941, with the United States remaining neutral, wood pulp supplies available from this country appeared abundant. Therefore, in view of the large inventory positions in many South American importing countries, buying in that year fell off substantially under 1940.

Another cycle, however, was reached in 1942 following Pearl Harbor, when







# CORRECT VAT DESIGN INSURES CLEAN PULP

MULTIVAT      ECCENTRIC DRIVE      FLAT SCREEN  
PATENTED

- A study of the above diagram will reveal the superiorities of the SMYTHE MULTIVAT FLAT SCREEN vat design.
- THE SMYTHE SCREEN has a proven, effective eccentric driving motion, positively actuating the diaphragms — LOW MAINTENANCE due to adequate line shaft bearings and oversize eccentrics.
- Progressive mills in the Pacific Northwest are setting new production records with this screen.
- BUILT ON THE PACIFIC COAST AND CANADA FOR QUICK DELIVERY.
- ANALYZE — INVESTIGATE — INQUIRE of those using the SMYTHE MULTIVAT FLAT SCREEN.

**RAY SMYTHE**  
501 Park Bldg. Portland 5, Ore.  
Beacon 0502

Representing —  
ATWOOD & MORRILL CO., Salem, Mass. .... VALVES  
CARBORUNDUM CO., Niagara Falls, N. Y. .... SPECIAL WHEELS  
WM. A. HARDY & SON, Fitchburg, Mass. .... SCREEN PLATES  
HEPPENSTALL CO., Pittsburgh, Pa. .... FORGINGS, SHEAR KNIVES, DIE BLOCKS  
NORTHMAN DUFFKE CO., Milwaukee, Wis. .... PERFORATED METAL  
RICE BARTON CORP., Worcester, Mass. .... PAPER MACHINERY  
SHENANGO-PENN MOLD CO., Dover, Ohio. .... CENTRIFUGAL BRASS and ALLOY CASTINGS  
LANGDON COLLAPSIBLE WINDER SHAFTS.



it was again apparent that the wood pulp situation would become acute. Thus, exports in 1942 increased moderately over the 1941 level, even though wood pulp exports for 1942 were included under the allocation program of WPB with the Office of Economic Warfare as the claimant agency.

Exports in 1943 were about the same as in 1941, the decline from 1942 being due entirely to stricter export controls and reduction in the quotas made available for export.

In the case of paper, 1940 also witnessed a very large export increase over 1939. However, 1941 exports gained still more in view of virtual elimination of most European sources of supply, with the exception of Sweden. Paper inventories, although reaching fairly high levels in 1940, were not in positions equivalently as high as were stocks of wood pulp in most foreign importing countries.

In 1942 there was a sharp falling off in paper exports owing in large measure to stringent shipping conditions which did not allow movement of large quantities

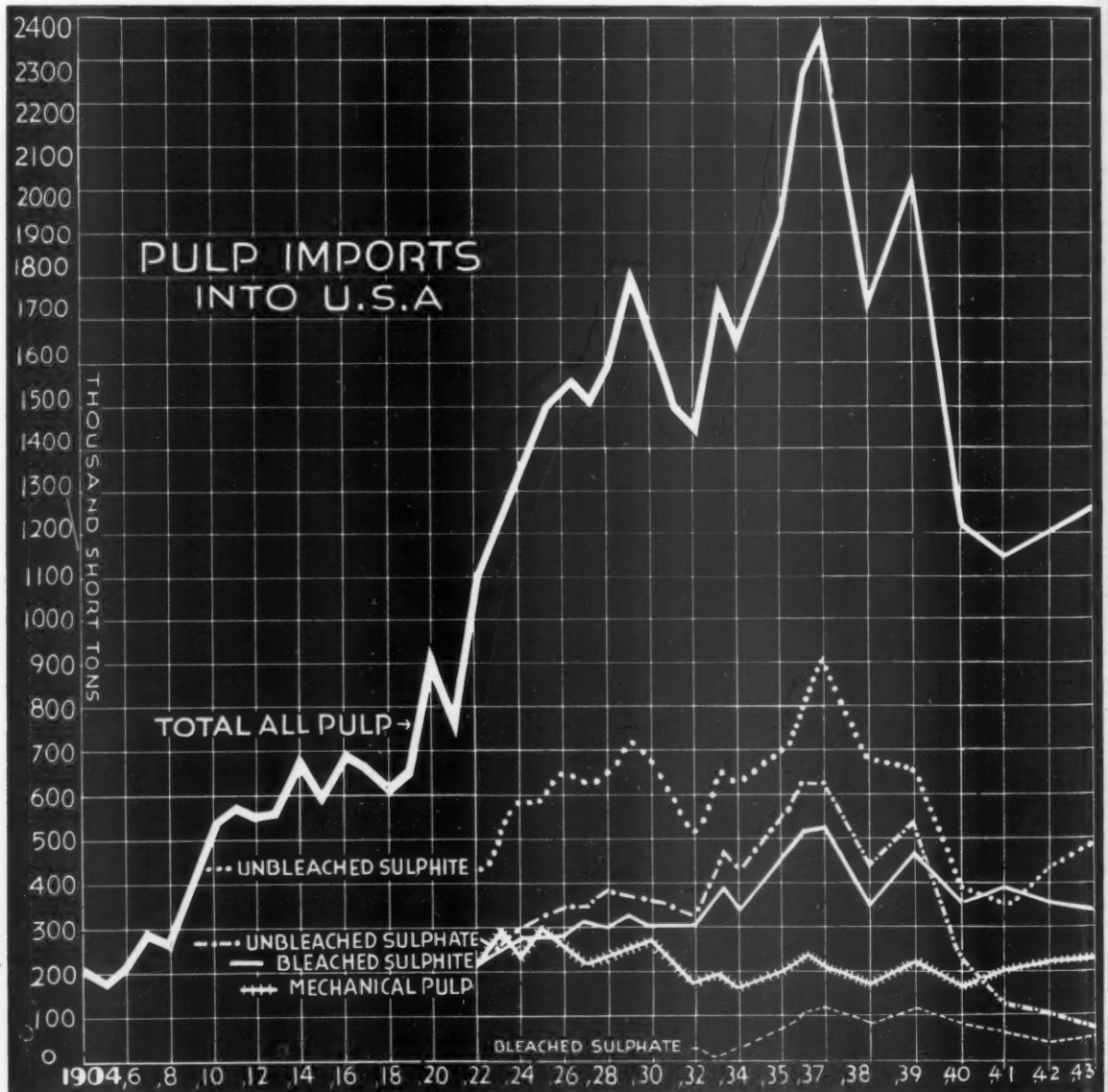
of paper on order. Toward the end of 1942 and during the first 9 months of 1943 paper supplies in the United States reached a comparatively critical short supply position. Therefore, exporters found it increasingly difficult to obtain paper for export. This, coupled with continued difficulties in shipping space, resulted in 1943 exports being held at about the 1942 level. Paper for exports was placed under allocation September 1, 1943.

The Lend-Lease Act, which became effective in March, 1941, assisted the countries resisting the Axis aggression in obtaining foodstuffs and military supplies. This was done by placing at their disposal the procurement facilities of the United States Government and by permitting the transfer of goods to them without immediate payment in dollars. The export license system was extended during that year to cover practically all export commodities and served (1) to prevent transactions which might aid the enemy and (2) to enable friendly nations to obtain equipment and materials essential to the maintenance of their economies and to their defense. These measures

of economic warfare resulted in a heavy concentration of United States trade, both export and import, with the other United Nations.

The underlying principle of the Good Neighbor Policy is to give vital requirements to the other American republics under such priority as may be necessary to maintain their industrial and economic stability, provided there is no prejudice to the national defense program of this country. Definite licensing and other controls have been in effect in order that (1) those goods in short supply would receive the most equitable distribution and be conserved for the best military and strategic use, (2) where possible essential items would continue to be exported, (3) such goods would not reach undesirable hands, and (4) the most effective use would be made of the limited shipping space.

To insure and control the delivery of sufficient paper to provide for the essential requirements of Latin America and certain other countries, paper and paper products were placed under allocation September 1, 1943.





# NEWSPRINT: With Aid of Press & Congress, Industry Keeps Production High

Canada does even better than in 1939 / / / Newspapers set all-time high record for circulation / / / Complaints voiced over possibility of a WPB stockpile / / / Newspaper allotments, however, are hardly a menace to "freedom of the press" with per capita consumption 53½ pounds compared to 42 pounds in boom year of 1920.

**T**HE North American production and consumption of newsprint in 1943 was much larger than seemed likely at the beginning of the year.

Production totaled 4,024,000 tons, according to the News Print Service Bureau, falling off only 8.7 per cent or 383,000 tons from 1942. About three-fourths of this reduction was equivalent to the reduction in Canadian exports, which went almost entirely to the United States.

Consumption by United States publishers reporting to the American Newspaper Publishers Association totaled 2,720,000 tons, only four per cent, or 115,000 tons less than the 1942 consumption. This was only 7.7 per cent less than 1941 useage despite repeated directives from the War Production Board seeking to cut newsprint useage to 10 per cent below the 1941 figure. (However, other sources indicated total U. S. consumption of 3,650,000 tons.)

Drastic reductions were ordered in the beginning of 1944—averaging 23 per cent below 1941 for all the nation's newspapers and this came about in part as a result of the negligence of some newspapers in reaching earlier designated cuts.

Some criticism in the American press had been directed against Canada for lack of newsprint. The facts were, however, that Canadian production in 1943 was better even than in 1939, whereas United States production was the lowest in more than 40 years.

The probability that waste paper campaigns cannot possibly reach their goal of 8,000,000 tons in 1944 and more insistent and increasing demands of the army and navy for paperboard were a serious threat to newsprint production and consumption in 1944.

Newsprint mills, being large producers and users of virgin pulp, may very probably have to make some concessions to the board mills if the latter cannot obtain sufficient waste paper to meet demands. It is safe to assume the army and navy and war agencies, if facing a pinch, will turn covetous eyes on the pulp used for newsprint.

The newspapers themselves and their friends in Congress are largely responsible for the fact that newsprint supplies and consumption have been kept to a high figure despite conversion of two-thirds of North American industrial output to war materials and supplies.

## Press Circulation Sets Record

● A newspaper committee waged an aggressive campaign for pulpwood production in 1943. At mid-year pulpwood receipts in the United States were 24 per cent off the previous year. But the tide was turned toward the close of the year and there was only a 10 per cent drop recorded at the close of the year for the entire twelve months. The newspaper campaign stimulated thousands of farmers and other woodsmen to produce pulpwood for the mills in the east, midwest and south. Also the newspapers did a good job in bringing paper salvage totals to somewhere near the impossible goals. The Boren Congressional committee made a tour across Canada and into the Pacific Northwest and spread the gospel for more newsprint. This year the Truman senate committee has taken up the battle, conducting hearings in the west.

Incidentally, this all brought a wider recognition by both Congress and the press of the general essentiality of all kinds of pulp and paper products.

This has helped out the newspapers immensely in a year in which all previous circulation records were

## U. S. Newsprint Industry's Share Of Domestic Market Continues to Decrease

United States newsprint mills supplied 20 per cent of the total newsprint available for consumption in the country in 1943 as compared with 22 per cent in 1942, 25.2 per cent in 1941, 25.9 in 1940, 26.1 in 1939 and 27.3 in 1938. In 1915 they produced 76.3 per cent. Correspondingly, supplies from Canada and Newfoundland increased. Each circle here represents the total amount of newsprint in the United States available for consumption in that year, with percentages supplied from domestic and foreign sources.



1943—



1942—



1915—



smashed and a greatly increased demand by advertisers for space occurred.

Many critics saw a threat to the freedom of the press in the War Production Board powers of allotting newsprint quotas. But the long view taken by many newspaper publishers themselves is that, aside from necessary military censorship and a few cases of apparently unjustified delays and devious handling of news, the American press is more free today than any press ever was anywhere in history. The actual situation in Washington is that the newsprint quotas were drawn up on a technical and not a political basis by men from industry and business. However, many critics contended that the percentage basis for cuts hurt the small 8 or 16-page small town paper far more seriously than it did some big metropolitan newspapers that were still running 100 and 150 page papers.

Going into 1944, there were encouraging signs that Canadian news-

print production might be better than expected and, in fact, the early months showed increases over 1943. But the WPB would not relax on its restrictions, arguing that other war demands for paper were increasing and that inventories were far down. Many newspaper publishers voiced alarm over possibility of a WPB reserved stockpile.

Editor and Publisher revealed

#### Canada to U. S.

The Newsprint Association of Canada issues the following table, with 1944 estimates, showing how much Canadian newsprint, wood pulp and pulpwood have been shipped to the United States, revealing a substantial wartime increase in all three categories:

	(Thousands of tons)		(Thousands of cords)	
	Newsprint	Wood Pulp	Pulp	Wood
1935-39 ave. ....	2,285	586	1,306	
1940 .....	2,594	825	1,521	
1941 .....	2,770	1,109	1,842	
1942 .....	2,811	1,197	1,984	
1943 .....	2,520	1,280	1,550	
1944 .....	2,400	1,100	1,250	
1940-44 ave. ....	2,619	1,102	1,629	

that daily newspaper circulation in the United States in 1943 reached a record high of 44,392,829, a gain of 2.3 per cent, and Sunday circulation hit 37,291,838 copies, a gain of 5.7 per cent. However, the number of newspapers declined from 1,787 to 1,754 (English language).

By agreement of Canadian and American price authorities, newsprint prices were raised twice during 1943—\$4 a ton each time to a final high of \$58 a ton. This added well over \$20,000,000 to revenue of the Canadian newsprint industry.

In order to encourage use of lighter weight newsprint paper and increase the "area" of available supplies, the Office of Price Administration allowed premiums over the ceiling price for lightweight newsprint.

#### Production

● Discussing the 1943 newsprint production; Royal S. Kellogg, secretary of the News Print Bureau

### SOURCES OF NEWSPRINT USED IN THE UNITED STATES

(Tons in Round Numbers)

Source: News Print Service Bureau

	U. S. Production	U. S. Exports	Imports into the U. S. From			Available for Consumption
			Canada	Newfoundland	Europe	
1913 .....	1,305,000	43,000	219,000	-----	1,000	1,482,000
1914 .....	1,313,000	61,000	310,000	-----	5,000	1,567,000
1915 .....	1,239,000	55,000	367,000	-----	1,000	1,552,000
1916 .....	1,315,000	76,000	468,000	-----	-----	1,707,000
1917 .....	1,359,000	94,000	558,000	-----	1,000	1,824,000
1918 .....	1,260,000	97,000	596,000	-----	-----	1,759,000
1919 .....	1,375,000	111,000	628,000	-----	3,000	1,895,000
1920 .....	1,512,000	49,000	679,000	1,000	50,000	2,193,000
1921 .....	1,225,000	17,000	657,000	-----	135,000	2,000,000
1922 .....	1,448,000	26,000	896,000	-----	133,000	2,451,000
1923 .....	1,485,000	16,000	1,109,000	-----	200,000	2,778,000
1924 .....	1,481,000	17,000	1,197,000	4,000	156,000	2,821,000
1925 .....	1,530,000	23,000	1,295,000	20,000	133,000	2,955,000
1926 .....	1,684,000	19,000	1,658,000	94,000	100,000	3,517,000
1927 .....	1,486,000	12,000	1,776,000	89,000	122,000	3,461,000
1928 .....	1,418,000	11,000	1,926,000	114,000	116,000	3,563,000
1929 .....	1,392,000	19,000	2,195,000	132,000	96,000	3,796,000
1930 .....	1,282,000	10,000	1,989,000	156,000	134,000	3,551,000
1931 .....	1,157,000	10,000	1,754,000	160,000	151,000	3,212,000
1932 .....	1,009,000	8,000	1,533,000	114,000	144,000	2,793,000
1933 .....	946,000	11,000	1,545,000	95,000	153,000	2,728,000
1934 .....	961,000	23,000	1,956,000	107,000	147,000	3,148,000
1935 .....	912,000	23,000	2,062,000	124,000	197,000	3,272,000
1936 .....	921,000	15,000	2,422,000	87,000	243,000	3,658,000
1937 .....	946,000	17,000	2,899,000	124,000	294,000	4,246,000
1938 .....	820,000	6,000	1,938,000	94,000	243,000	3,089,000
1939 .....	954,259	13,000	2,206,000	104,600	310,000	3,561,859
1940 .....	1,013,000	44,000*	2,586,000	157,000	34,000	3,746,000
1941** .....	1,058,000	73,000*	2,762,000	217,000	3,000	4,015,000
1942** .....	953,000	18,000	†	†	†	3,800,000
1943** .....	805,000	15,000	†	†	†	3,650,000

\*Includes paper which is not standard newsprint. Standard newsprint exports from the U. S. during 1940 did not exceed 15,000 tons; during 1941 the exports did not exceed 25,000 tons.

\*\*Figures estimated by the News Print Service Bureau.

†See table in middle column above from Newsprint Association of Canada.





# BENOWAX™

FOR MOISTURE-VAPOR  
RESISTANCE IN  
WRAPPING AND  
CARTONING MATERIALS

## TYPICAL CHARACTERISTICS OF VARIOUS GRADES OF BENOWAX

	Subject to Allocation			Not Subject to Allocation		
	BENOWAX C	BENOWAX D	BENOWAX P***	BENOWAX L	BENOWAX P	BENOWAX Q
Viscosity, Liquid State (A.P.I. Theor. corrected to 60°F.)	35	34.3	35	8.8		
Softening Point (A.S.T.M. D127-30°F.)	140-45	150-55	145-50	*157-63	153	135
Penetration (A.S.T.M. D5-25, 77°F. 100G, 5 Sec.)	35-40	15-20	50-60	30-35	141	34
Stability (S.U.V. at 210°F.)	60-70	76	60-70	**430	79	52
Color (N.P.A., melted state)	4 dilute		4 dilute		7-8	4
Color (solid state)	Brown	Light Brown	Brown	Black	Amber	Light Amber
Flash (O.C.°F.)	500	525	500	540	555	450
Neutralization No. (No. Mg KOH per gram)	.20	.02	.20	1.8	0.02	0.01
Carbon Residue, %	.15	.50	.15	3.5	0.13	0.08
Iodine No. (Mod. Hanus)	5.5	7.0	5.5		4.4	3.9
Specific Gravity (60° / 60° (Theor.))	.849	.853	.850	1.008	0.898	0.905

\*Softening Point (A.S.T.M. D-36-26)  
\*\*\*Subject to allocation but in ample supply

Developed for the specific purpose of providing dependable resistance to moisture-vapor penetration in wrapping and cartoning materials, the various grades of BENOWAX are both low in cost and flexible even at low temperatures. Although not recommended as an exposed coating material for some purposes, BENOWAX when used as a laminating substance, effectively retards the transfer of moisture-vapor without impairing flexibility in any way.

The following characteristics make BENOWAX outstanding as a laminating material:

1. When used as a laminating agent, the moisture-vapor resistance of BENOWAX compares favorably with many films ordinarily considered moisture-vapor proof.
2. It provides a certain degree of grease and oil resistance.
3. It exhibits good pliability, fair to strong adhesive power, depending upon the grade selected.
4. Some grades protect package contents from deterioration due to light.
5. It is low in cost (a fraction of that for many materials that have been used for rendering paper moisture-proof).

Certain of the various grades of BENOWAX . . . an amorphous petroleum wax . . . have become so important in the manufacture of moisture-vapor proof wrappings for war goods, that they are available only for such military uses.

There are, however, other grades of BENOWAX . . . notably F, L, P and Q . . . that may be obtained for less essential uses. Accordingly, you may find that a BENOWAX will serve your purpose without modification. However, should they not meet your exact specifications, they may be used as extenders for the more critical micro-crystalline waxes. In this way, they can help you through these days of emergency replacements.

## American Cyanamid & Chemical Corporation

(A Unit of American Cyanamid Company)

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

DISTRICT OFFICES: Boston, Mass.; Philadelphia, Pa.; Baltimore, Maryland; Charlotte, N. C.; Cleveland, O.; Chicago, Illinois; Kalamazoo, Michigan; Detroit, Michigan; St. Louis, Mo.; Azusa, Cal.; Seattle, Wash.

WAXES • WAX SIZES  
ROSIN SIZE • SYNTHETIC  
RESINS • CASER • ALUM  
SULPHONATED OILS • FILLERS  
FOAMERS • SODA ASH  
CAUSTIC SODA • SALT CAKE • ACIDS  
CLAYS • SATIN WHITE • AEROSOL  
WETTING AGENTS • CALMICO  
(CALCIUM CARBONATE) AND  
OTHER PAPER  
CHEMICALS  
TREATS



Service, 342 Madison Ave., New York City, said:

"Last year's production was the least in any year since 1938 when the output was 3,713,000 tons. However, as has been mentioned at various times previously, the 1938 output was as abnormally low as the 1937 tonnage was abnormally high, so the only sound comparison is with the average of 4,328,000 tons for those years. On this basis the 1943 continental production of newsprint was the least in any year since the 4,021,000 tons made in 1935.

"The 1943 output of North American newsprint was supplied to the extent of 74 per cent by Canadian mills, 20 per cent by United States mills and 6 per cent by Newfoundland. The decrease in Canada from the preceding year was 6.1 per cent, that in the United States 15.5 per cent, and in Newfoundland 14.9 per cent.

"Canadian production in 1943 was maintained at a relatively better rate than that in the United States or Newfoundland. To get a

smaller figure than the 2,983,000 tons of newsprint made in Canada in 1943, we need only to go back to 1939 when the output was 2,869,000 tons.

"To get a smaller figure than the 805,000 tons made in the United States last year, we have to go back over 40 years. Similarly, to get a figure comparable with the 236,000 tons made in Newfoundland, we must go back to 1928.

"The 4,024,000 tons of newsprint turned out in North America in 1943 was equivalent to 68.5 per cent of an assumed capacity of 5,872,000 tons. The closest operating approach to assumed capacity that the North American mills as a whole have reached in recent years was in 1937 when the output was 4,944,000 tons, or about 87 per cent of theoretical capacity."

#### Canadian Exports

● Official figures from Ottawa are to the effect that exports of newsprint from Canada in grand total amounted to 2,810,000 tons last year compared with 3,005,000, or a de-

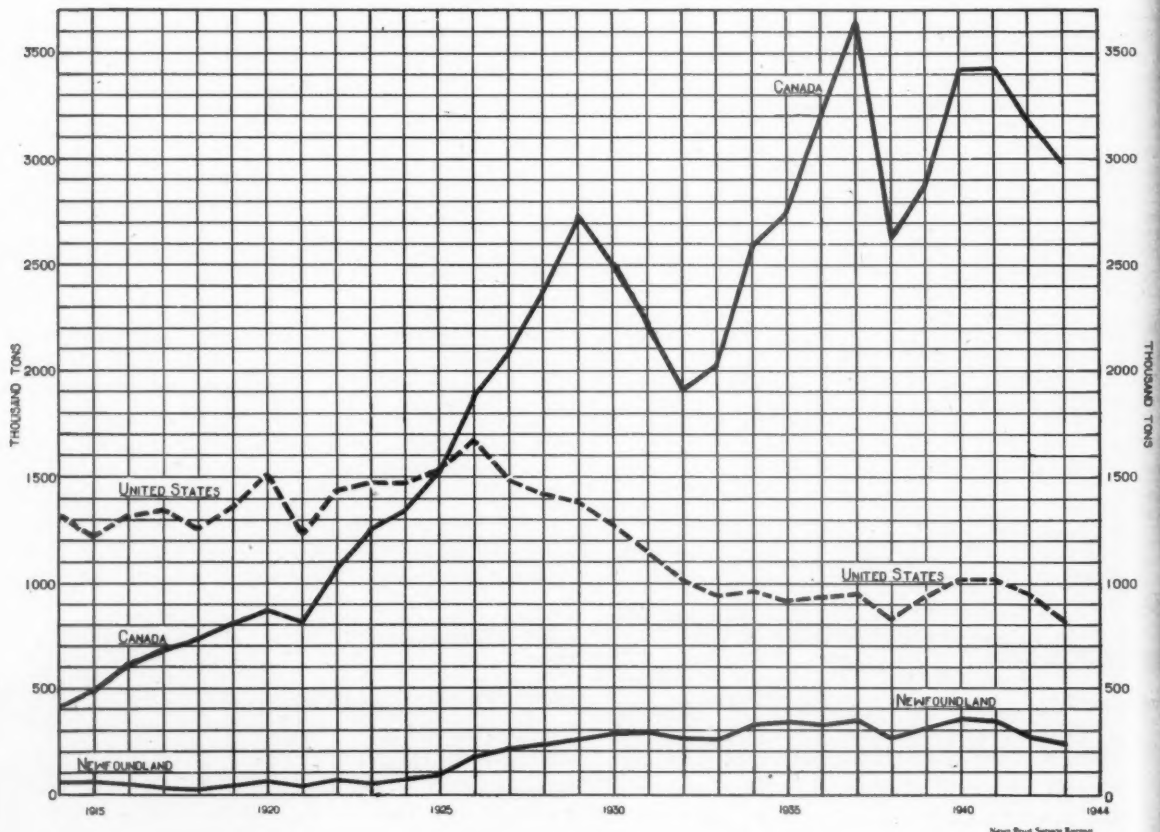
crease of 6½ per cent from 1942, according to Mr. Kellogg.

Canadian overseas shipments in 1943 were only about half of the average in the years just preceding the war, but they were nevertheless larger than in 1932.

Exports of standard newsprint from the United States in 1943 were reported by the mills to have been nearly 15,000 tons compared with 18,000 tons in 1942. If at some future time Washington policy again permits the release of official figures, such figures will undoubtedly be larger than those above given. This will be because Washington export statistics include under the heading of newsprint a number of closely related grades which do not come within the standard definition.

Stocks at North American mills on December 31 last totaled 116,000 tons while those on hand or in transit to publishers reporting to the ANPA amounted to 367,000 tons. This gave a total of 483,000 tons compared with 647,000 tons in the same hands on December 31, 1942. The manufacturers' stocks were reduced 53,000 tons during the year

NEWS PRINT PRODUCTION 1914-1943  
UNITED STATES-CANADA-NEWFOUNDLAND



News Print Service Bureau



# TIME TESTED ALLY OF THE PULP AND PAPER INDUSTRY

**Western Gear**  
**"Power**  
**Transmission**  
**Strategists"**  
**Work to Help**  
**You Produce**  
**More Pulp.**

The  
**PACIFIC-WESTERN**  
Model D-56 Gear Reducer,  
pictured at left, is typical  
among hundreds installed by  
**WESTERN GEAR WORKS** in  
pulp and paper mills. This is  
one of two units operating Min-  
ton dryer rolls at Weyerhaeuser  
Timber Co., Pulp Division, in Ever-  
ett, Washington.

For fifty years we have been de-  
signing and building the gears for  
Western industries. Recent installa-  
tions of additional precision gear cut-  
ting equipment in our enlarged Seat-  
tle plant, plus the finest laboratory  
testing and inspection equipment,  
enables us to offer gears and  
geared machinery unexcelled  
anywhere in the United States.

When you have a gear  
problem call —

**PACIFIC-WESTERN**

## **WESTERN GEAR WORKS**

417 NINTH AVENUE SOUTH • SEATTLE, WASH.

PLANTS: SEATTLE, LYNWOOD, VERNON, SAN FRANCISCO



and those of the publishers reporting to the ANPA were reduced 112,000 tons.

### Consumption

● Consumption by publishers reporting to the ANPA was 2,720,000 tons of newsprint paper in 1943; this was 115,000 tons or 4 per cent less than in 1942 and 227,000 tons or 7.7 per cent less than in 1941 compared with the official goal of a 10 per cent reduction from 1941. But checking as closely as possible with the best available figures of production, imports, exports and changes in stocks, it appears that the total use of newsprint in the United States in 1943 may have exceeded 3,650,000 tons.

Last year's use of newsprint corresponded exactly with the 1936 tonnage, but where as the per capita consumption in 1936 was nearly 57 pounds, the same tonnage in 1943 amounted to a per capita consumption of 53½ pounds. The Bureau of Census in Washington gives an estimated continental population of

the United States of 136,527,000 on July 1, 1943, which is somewhat larger than had been anticipated and makes a correspondingly smaller per capita consumption.

The 1943 consumption of newsprint in the United States on a per capita basis, while somewhat reduced, was still 10 pounds more than that reached in the depth of the depression of 1933. It is also somewhat surprising to go back to the boom year of 1920 following the close of World War I and find that per capita consumption of newsprint at that time was only 42 pounds. As far as quotas are concerned, therefore, "freedom of the press" is not a serious issue.

The latest WPB statement in Washington anticipated a total of 1,638,000 tons of newsprint available for all purposes in the United States during the first half of 1944, but so far it has not promised that the use of this entire amount will be permitted. The WPB talks about restoring inventories voluntarily re-

duced by some newspapers below the permitted maximum in the latter part of 1943, and also proposes a reserve to meet appeals for extra tonnage.

### Newsprint Consumption

	Pounds Per Capita	
	Prewar	Wartime
United States .....	53	54
Canada .....	33	33
Britain .....	60	11
Australia .....	58	15

Estimated from official total consumption reports. Pre-war is 1938-1939 average; wartime is 1943 rate. In 1944 North American consumption will drop; British and Australian will improve.

### U. S. Wages Propaganda War With Newsprint

● Despite the wartime shortage of newsprint, the United States government sought to bolster the propaganda battle against the Axis by authorizing shipment of considerable supplies of newsprint abroad.

In 1943, the United States shipped 70,512 tons of newsprint to 48 nations in strategic areas of the global war. (This compared with 83,190 in 1942, 140,530 in 1941, 87,833 in 1940, 26,991 in 1939 and 11,291 in 1938.)

Mexico was by far the biggest beneficiary of the U. S. policy. Brazil's total is low because it now has a new newsprint industry of its own.

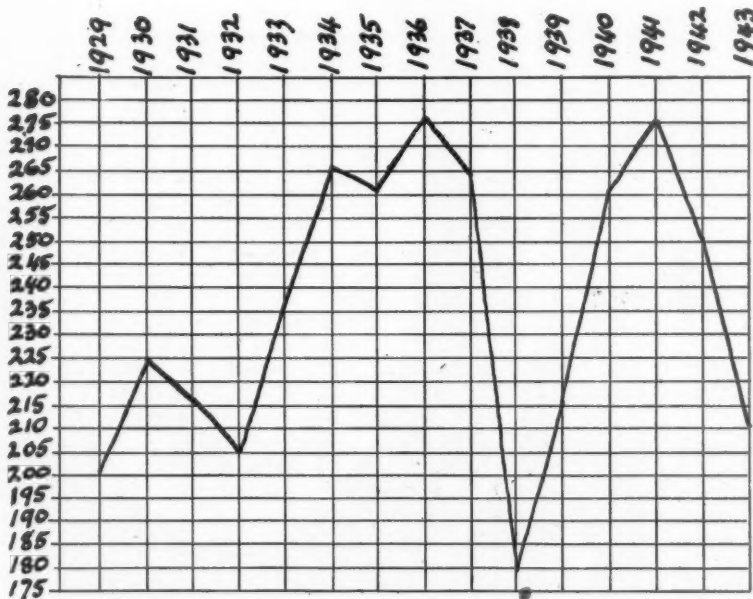
U. S. exports of newsprint in the first six months of 1943 went principally to the following countries in these amounts (in pounds):

Iceland .....	231,765
Canada .....	74,851
Mexico .....	13,596,700
Guatemala .....	319,136
El Salvador .....	1,042,596
Nicaragua .....	448,766
Costa Rica .....	708,103
Panama, Republic of .....	432,648
Bermuda .....	60,959
Cuba .....	3,704,855
Dominican Republic .....	405,202
Colombia .....	2,208,693
Venezuela .....	486,711
Surinam—Dutch Guiana .....	126,003
Ecuador .....	782,223
Peru .....	1,776,168
Bolivia .....	333,585
Chile .....	679,851
Brazil .....	57,654
Uruguay .....	554,439
Argentina .....	1,201,646
Portugal .....	369,456
British India .....	1,383,209
Ceylon .....	222,146
Australia .....	40,938
French Morocco .....	1,439,051
Algeria .....	749,810
Egypt .....	1,351,667
Belgian Congo .....	36,960
Portuguese Gn. and Angola .....	61,513

Twenty other countries received small shipments. Shipments for the first half of 1943 to all countries totaled 35,939,056 pounds (12,970 tons). The year's total, given above, is about five times this amount.

### BRITISH COLUMBIA NEWSPRINT PRODUCTION

(In Thousands of Tons)



THE WORLD MARKET SITUATION is reflected in the trend of newsprint production in British Columbia. Powell River Co. and Pacific Mills have been the producers.

The dip in production during the early 1930's was accounted for by the general depression. A sharp decline occurred in 1938 as a result of the reduction in sales to the Orient. By 1940 an improvement had set in with rising consumption in the United States and Canada, and the elimination of competition from the Scandinavian countries as a result of the war. In 1942 and 1943 production fell off as a result of wartime restrictions.



# RAYON PULP: New High Record Reached in Its Use in U. S. Industry

Rayon tire cord program for Army stimulates production  $\uparrow \uparrow \uparrow$  In long run, wood pulp has big advantages over cotton linters as basic supply for the rayon industry  $\uparrow \uparrow \uparrow$   
Total rayon production excels all previous records.

**A** NEW all-time high record for the use of wood pulp in the manufacture of rayon was established in 1943, notwithstanding the shortage of the high alpha dissolving wood pulp.

A total of 336,500 tons of wood pulp was used in the United States as compared with 330,000 in 1942. In the purified form used by rayon producers this totaled 281,000 tons in 1943 as compared with 280,500 tons in 1942, the previous record year. Similar increases have been recorded in foreign countries. As a matter of fact, every year has been a record year as far as wood pulp is concerned—its use increasing annually by substantial margins ever since its was first introduced as a rayon raw material in the 1920's.

Increase in use of wood pulp kept pace with the increase in production of rayon. The United States rayon industry excelled all previous production performances with a record output of 663,100,000 pounds (yarn and staple fiber) in 1943. This represents a five per cent increase over the 1942 output.

It is interesting to note that in these past two years rayon consump-

tion in the United States exceeded wool fiber consumption in weight. It had dropped behind in 1941 after exceeding wool since 1938. It passed silk consumption in weight back in 1927 but it is still a long way off from challenging cotton.

Rayon has had a natural steady growth aside from the unusual demands placed upon it by the war emergency. The growth has kept up with improvements in quality.

Of the two sources of supply for rayon—wood pulp and cotton linters—the former has provided considerably more tonnage in the refined form for many years. It provided 62 per cent in 1930, dropped to 56 in 1934, increased to 75 in the years 1937 to 1941, then to 85 per cent in 1942.

The reason it dropped back to 84 per cent in 1943 while showing an actual increase in tonnage, as disclosed in an accompanying table, was the unusual wartime demand for rayon cord tires. Use of cotton linters was increased slightly more than that of wood pulp for this purpose, although both are being used by the manufacturers of rayon tire cord.

## Why Wood Pulp is Best

● In the long run there are several reasons why wood pulp is expected to continue to exceed linters as a source of raw material for the rayon industry. Uniformity of fiber and low cost are two important reasons. With the steady improvement and perfection of rayon wood pulp grades, a bigger supply can be offered. More wood pulp can be grown on an acre of ground than cotton.

The producers of rayon grade wood pulp can take a bow for the fact that the market price of rayon yarn has been brought down from \$4.77 per pound in 1918 to \$1.50 in 1928 and to 55 cents in 1943. This is an achievement of American industrial ingenuity for which the wood pulp producers deserve no little credit.

There were different production trends in the branches of the U. S. rayon industry in 1943. The viscose process—biggest user of wood pulp—showed a big increase. Other processes are also large users of wood pulp.

Viscose plus cuprammonium filament yarn output of 338,511,000 pounds showed an increase of 9 per cent over the 310,475,000 pounds

## CELLULOSE CONSUMPTION BY THE U. S. RAYON INDUSTRY

### Short Tons of Refined Cellulose

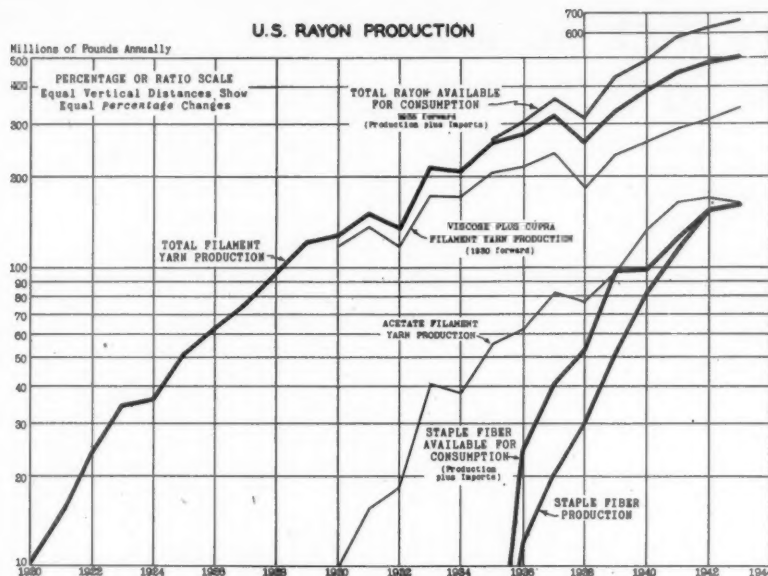
	TOTAL PULP		WOOD PULP*		LINTERS PULP*		RAW COTTON
	Tons	Per Cent	Tons	Per Cent	Tons	Per Cent	LINTERS†
1930.....	72,000	100	45,000	62	27,000	38	115,000
1931.....	84,000	100	53,000	63	31,000	37	132,000
1932.....	74,000	100	43,000	58	31,000	42	132,000
1933.....	115,000	100	65,000	57	50,000	43	213,000
1934.....	112,000	100	63,000	56	49,000	44	209,000
1935.....	137,000	100	86,000	63	51,000	37	218,000
1936.....	151,000	100	104,000	69	47,000	31	201,000
1937.....	176,000	100	132,000	75	45,000	25	187,000
1938.....	147,500	100	110,000	75	40,000	25	160,000
1939.....	194,500	100	145,000	75	53,000	25	211,000
1940.....	238,000	100	178,000	75	60,000	25	256,000
1941.....	287,500	100	214,500	75	73,000	25	312,000
1942.....	330,000	100	280,500	85	49,500	15	211,000
1943.....	336,000	100	281,000	84	55,500	16	237,000

\*Wood and linters in purified form as used by rayon producers.

†Bales of raw cotton linters figured on the basis of one-third overweight on refined linters pulp (due to refining losses) and converted to bales on the basis of 625 pounds net weight per bale.

Source: Rayon Organon, March, 1944.





**United States Rayon Production in Millions of Pounds**

	1943	1942	1941	1940	1939	1938	1930
Rayon Filament Yarn	501.1	479.3	451.2	390.1	328.6	257.6	127.3
Rayon Staple Fiber.....	162.0	153.3	122.0	81.1	51.3	29.9	0.4
<b>TOTALS.....</b>	<b>663.1</b>	<b>632.6</b>	<b>573.2</b>	<b>471.2</b>	<b>379.9</b>	<b>287.5</b>	<b>127.7</b>

**United States Rayon Consumption in Millions of Pounds**

	1943	1942	1941	1940	1939	1938	1930
Rayon Filament Yarn	494.2	468.8	452.4	388.7	362	274	118
Rayon Staple Fiber.....	162.0	151.8	133.6	99.1	96.5	53	1
<b>TOTALS.....</b>	<b>656.2</b>	<b>620.6</b>	<b>586</b>	<b>487.8</b>	<b>458.5</b>	<b>327</b>	<b>119</b>

Source: Rayon Organon, February, 1944.

made in 1943, principally due to the continued expansion of the rayon tire yarn program. The acetate filament yarn output at 162,614,000 pounds, on the other hand, showed a decline of 4 per cent from the 1942 figure of 168,855,000 pounds; here the shortage of essential raw materials was the principal factor causing the decrease. Rayon staple fiber output increased 6 per cent from 153,285,000 pounds in 1942 to 162,019,000 pounds in 1943.

Domestic deliveries of rayon followed the same general pattern of production, except that the viscose-cupra filament yarn took the main burden of the Good Neighbor Policy Export Program during the year, according to Rayon Organon, published by the Textile Economics Bureau, New York City. In the

latter part of 1943, however, acetate filament yarn and rayon staple fiber exports were increasing. Because of government restrictions, the amount of rayon yarn exported cannot be reported separately. Imports of rayon into this country during 1943 may be considered as nil.

Essentially 4 per cent of the rayon cloth production after rated orders is earmarked for export. While there are no direct orders affecting rayon knit goods for export, it may be presumed that licenses are periodically issued by the FEA for export of these commodities. Finally, certain amounts of rayon tire yarn and rayon staple fiber are exported from this country, but the amounts thereof have not been made public.

If all of this rayon for export

is added together either on a yarn or on a fabricated basis, approximately 8½ per cent of the supply which would otherwise go to civilians is currently being exported.

#### Rayon and the War

● Dan B. Wicker, pilot plant supervisor of American Viscose Corp., made these comments on rayon and the war:

"Since the beginning of the current conflict rayon has contributed to a highly important extent to the country's general welfare.

"The dwindling of rayon imports to the vanishing point has transferred to the domestic industry the responsibility of providing increased output to prevent serious shortages and economic upsets. In addition, diversion of natural fibers to war service, and reduction of imports reduced the amounts of such fibers for civilian needs. As a consequence there has been a greatly enlarged use of rayon in the manufacture of woolen, worsted, linen, and other types of fabrics for civilian needs.

"There have also been progressively increasing uses of rayon products to fulfill direct war requirements. High tenacity rayon is serving the armed forces excellently for heavy duty truck and airplane tires, uniform and helmet linings, parachute troop uniforms, self-sealing gas tanks, neckerchiefs, insignia, special electrical insulation in planes and submarines, and in other ways.

"Before the present emergency arose, special types of rayon had been developed which are characterized by their high strength, toughness and stability. These have proved to be of particular value in the conduct of the war.

"Perhaps the most spectacular contribution is that of heavy duty rayon cord tires. The cords in these tires are made of the high strength continuous filament viscose rayon yarn. Due apparently to their smoothness, as compared with short fibered spun yarns, less internal frictional heat is developed. As a consequence there is less deterioration both of the tire fabric and of

#### ANNUAL FIBER CONSUMPTION IN THE UNITED STATES

(Units are Millions of Pounds and Percent)

	COTTON		WOOL		RAYON		SILK		TOTAL	
	Pounds	%	Pounds	%	Pounds	%	Pounds	%	Pounds	%
1920	2,828.1	88.9	314.2	9.9	8.7	0.3	29.2	0.9	3,180.2	100
1930	2,610.9	85.0	263.2	8.6	118.8	3.9	75.7	2.5	3,068.6	100
1935	2,754.7	78.9	417.5	11.9	259.0	7.4	62.3	1.8	3,493.5	100
1940	3,953.6	81.0	411.1	8.4	482.0	9.9	35.8	0.7	4,882.5	100
1942	5,613.8	82.0	613.8	8.9	620.6	9.1	nominal		6,848.2	100
1943	5,236.4	80.3	627.9	9.6	656.1	10.1	nominal		6,520.4	100

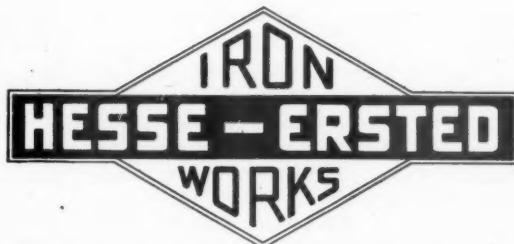
Source: Rayon Organon.





## COOPERATION IN CONVERSION

Cooperation in the Pacific Pulp and Paper Industry reached its highest mark in the War Effort. Cooperation in conversion should be even greater. Hesse-Ersted Iron Works have opened their new Assembly Plant and are re-tooling their Machine Shop to help in this great work to come. We offer our Engineering and Machine Shop facilities to help you in your rehabilitation and new construction. Look to Hesse-Ersted for cooperation in making your Post-War plans.

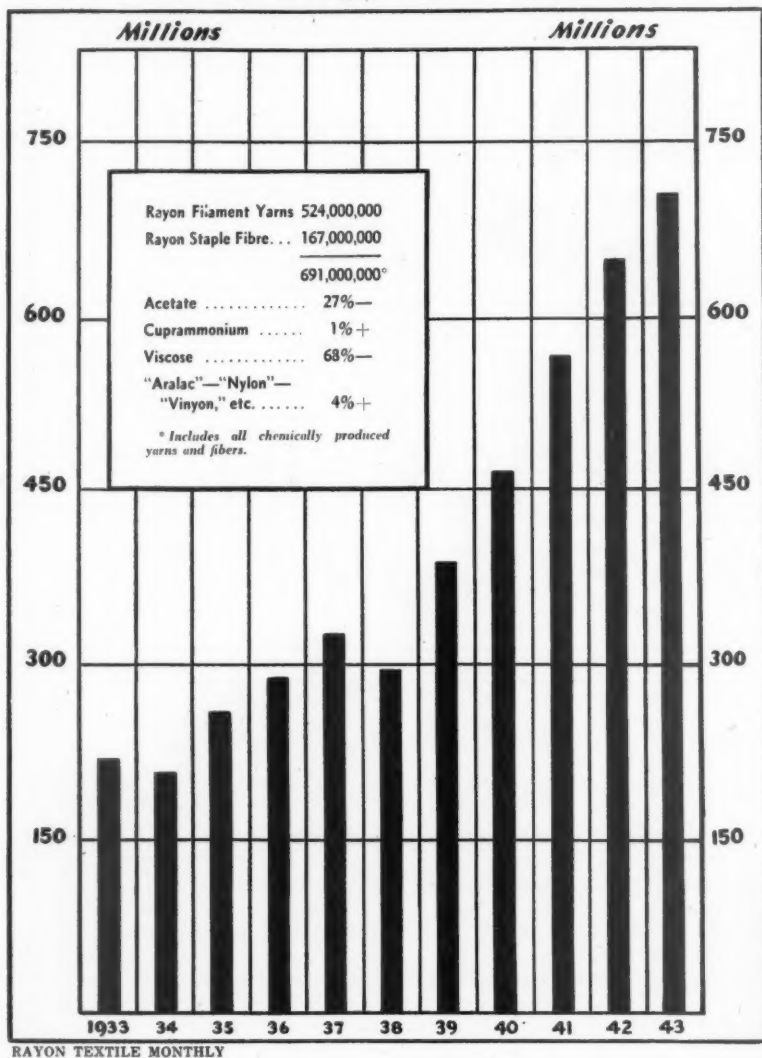


PORTLAND 14

OREGON



## U. S. A. Rayon Production



RAYON TEXTILE MONTHLY

rubber, especially during the severe service of heavy trucks and buses.

"Another important property lies in the fact that these strong rayon tire cords withstand shock very well and show much higher strength when a load is applied suddenly than when it is applied slowly and gradually.

"Another adaptation of strong rayon yarn is use in fabrics for self-sealing gas tanks; the fabric serves as an effective support for the soft-sealing plastic."

### Army's Choice

● In a hearing before the Truman senate committee concerning the relative merits of cotton versus rayon tire cord made prior to the approval of the conversion of an additional 40,000,000 pounds capacity

for the manufacture of rayon tire cord, a report from Donald Nelson maintained that rayon tires had a 25 per cent superiority over standard cotton cord. This conclusion was based on results of tests made by the Army.

Figures on rayon tire cord production released in the Nelson report revealed that on August 21, 1943, the rayon industry had an annual authorized capacity for high-tensile rayon of 162,000,000 pounds. But the actual production for 1944 was estimated at only 124,000,000 pounds.

This compares with the Rubber Director's requirements of 206,000,000 pounds of rayon and 200,000,000 pounds of cotton tire cord, or a total of 406,000,000 pounds of

tire cord required in 1944. The figure for all types of tire cord in 1941 was 335,000,000 pounds, 21 per cent lower than the present needs.

The whole rubber program has been a three-quarters of a billion dollar undertaking conceived, piloted and built in two years during the worst period of critical material shortages in our history. It is noteworthy that the pulp industry is contributing in two important ways to this program. Alcohol made from waste sulphite liquor at Thorold, Ont., and soon at Bellingham, Wash., will be used to make rubber as well as explosives.

### A 16th Century Tribute

I praise the man that first did paper make,  
The only thing that sets all virtues forth,  
It shoes new bookes, and keeps old work awake,  
Much more of price than all the world is worth:  
It witness bears of friendship, time, and troth,  
And is the tromp of vice and virtue both;  
Without whose help no hap nor wealth is won;  
And by whose ayde great works and deeds are done.

—A. D., 1588 by Thomas Churchyard.



**BETTER THAN THE ORIGINAL** stainless steel product is this laminated paper plastic ammunition box made by McDONNELL AIRCRAFT CORP., St. Louis. Feed tests indicated no jam in 12,000 rounds as compared with 26 jams in 10,000 rounds on steel box. Plastic box allows weight saving of 1.98 lbs. per box or 40% weight saving per airplane. It also costs less. Spruce sulphite paper, impregnated with only 35% phenolic resin is molded at 300° under 250 psi pressure.



The  
ord in  
s, 21  
resent

n has  
billion  
d, pi-  
luring  
aterial  
note-  
ry is  
ways  
made  
Thor-  
gham,  
ubber

paper

forth,  
d work

orld is

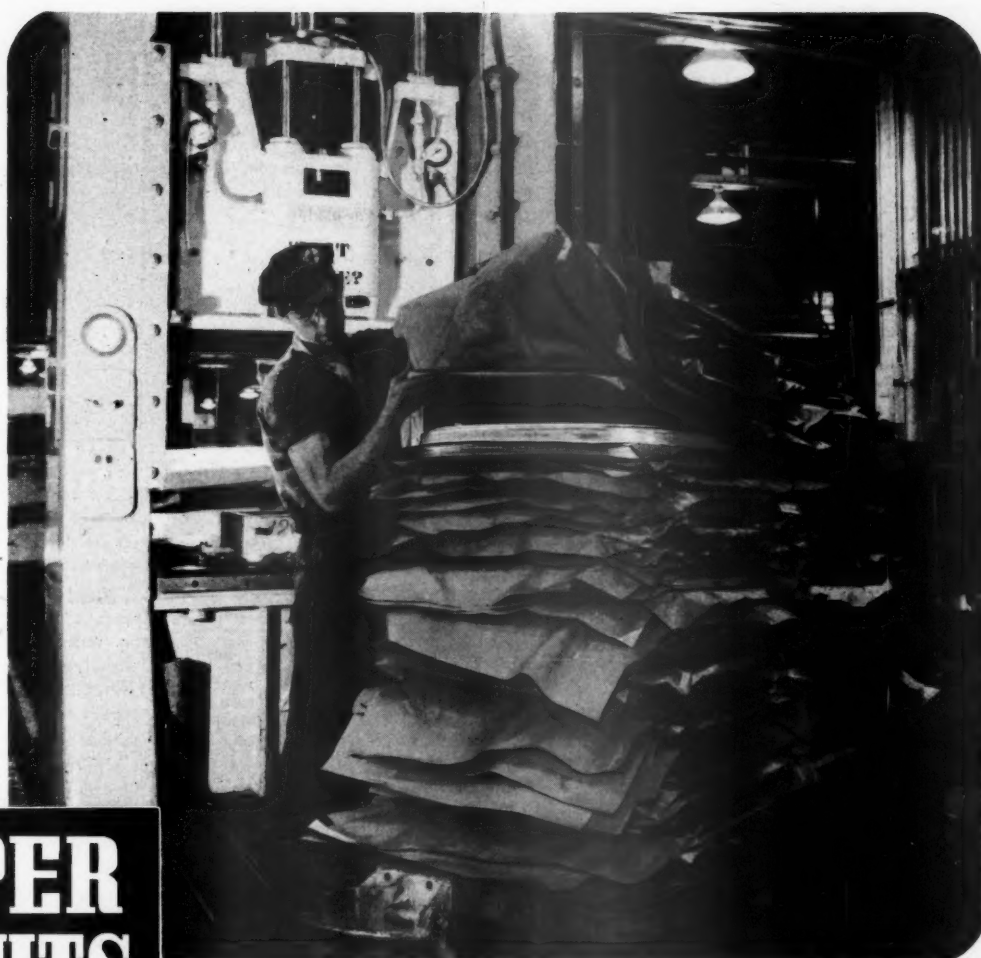
e, and

virtue

wealth

deeds

hyard.



—Courtesy Douglas Aircraft Corp.

**PAPER  
FIGHTS  
*too***



Our Maritime "M" Pennant  
now carries three stars, attest-  
ing to our war production  
achievement.



**PULP and PAPERMILL,  
LUMBER and SHINGLE  
MILL MACHINERY**

## Paper Protects Aluminum Stampings

**Paper** protects delicately finished aircraft parts—  
wraps food and supplies for fighting men  
—carries cement to war projects and does a thousand other  
war-vital jobs.

The man who makes paper, like the man who makes pulp  
and paper mill machinery, IS a war worker, just as much as if  
he were building tanks or planes. He is doing his share by  
**STAYING ON THE JOB** and producing.

We, at Sumner Iron Works, know we are engaged just as  
directly in war work now that we are once again making mill  
machinery as we were when we were making equipment for  
Liberty ships.

**SUMNER  
IRON WORKS**  
EVERETT, WASHINGTON





## PLASTICS: Estimates for 1943 Show Big Increase in Pulp and Paper Applications

About 20,000 tons of paper laminates are made in the United States . . . Pulp molding now a small field but is considered potentially the biggest by one experienced observer . . . Cellulose acetate now almost entirely made from wood pulp . . . However, all cellulose derivatives may offer small volume market.

**N**EW markets for the pulp and paper industry are rapidly developing in the plastics industry. So much interest is shown in plastics developments, as they affect this industry, that we have added this new department to the Review Number.

Although the pulp and paper industry is just recently really recognizing possibilities in plastics, the plastics industry long ago recognized the value of pulp and paper. In 1909, the late Dr. Leo Bakeland gave the plastics industry its greatest stimulus with the creation of the now well-known Bakelite. One of his early patents refers to the use of "superposed layers of paper combined with intermediate layers of a product of phenols and formaldehyde."

It has been estimated by the War Production Board that the output of plastics and synthetic resins during 1943 amounted to 300 million dollars. The latest official records, those for 1939 by the Bureau of the Census, give a product valuation of 78 million dollars.

According to WPB, in 1943 fabricated plastic products were manufactured to a value of around 280 million dollars. This compares with the 71.9-million-dollar output in 1939.

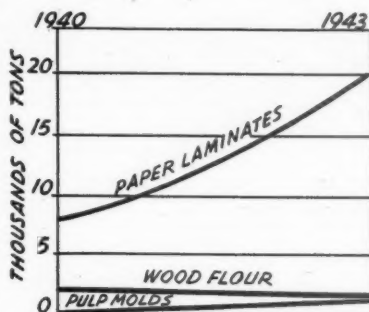
Some plastics materials go back as far as 1830, when cellulose nitrate was discovered. However, the plastics industry actually began in this country approximately three-quarters of a century ago with the production of "celluloid," the "granddaddy of them all."

The plastics industry, while essentially a chemical processing industry, has developed to such an extent in certain lines that some finished products are no longer considered, from a marketing standpoint as chemical products. For example, rayon, smokeless powder and photographic film—made largely from wood pulp.

Other pulp and paper applications in the fast-growing plastics industry can be divided into three main divisions:

1. Cellulose Derivatives. Fiber serves as the basic raw material con-

### U. S. Paper Laminates And Pulp Molds Production



According to estimates by A. J. Norton, Seattle consulting chemist, paper laminates increased in three years from 8,000 to 20,000 tons. Wood flour molds fell off slightly from 2,000 tons. Pulp molds rose from about zero to over 1,000.

verted by chemical action into finished thermoplastic material, as, for example, cellulose nitrate, acetate, the mixed esters and the cellulose ethers such as ethyl or methyl cellulose.

2. Pulp Molds. Fiber is intimately mixed with synthetic resin, as a so-called "filler," and acts as a reinforcing and modifying agent to the finished plastics.

3. Paper Laminates. Fiber is coated or impregnated with the resin to confer special properties on the paper which is used for packaging or other purposes.

In order to appreciate the potentialities of plastics derived from wood, according to Dr. R. V. V. Nichols, of McGill University, it is necessary to realize that all organic plastics, rubber, fibers, coatings and adhesives are substances of high molecular weight and consist of what chemists call "long molecules." Wood, containing as it does, roughly 50 per cent of cellulose, 30 per cent lignin and 20 per cent hemicelluloses, is an excellent natural source of long molecules.

### Mills Now Engaged

● Several pulp and paper mills are already engaged in the manufacture of specialty pulp and papers for the plastics industry. At least

one paper mill has converted entirely to production of materials for plastic finishing companies. A few large mills are making both fiber-resin combinations and also finished articles. More plastics divisions after the war are planned by some of the biggest companies in the industry.

The consensus seems to be that, in volume of production, by far the biggest field open to this industry in connection with plastics is in making paper laminates and pulp molds.

Two fields of plastics ready for "real expansion," according to A. J. Norton, consulting chemist, formerly of Portland, Me., and now of Seattle, Wash., are (1) cellulose esters and ethers, and (2) pulp molding. He predicts cellulose esters and ethers will be made into better and cheaper plastics than are made today.

In comparative volume, however, some hold the view that the cellulose derivatives will not offer a great field. Dr. Donald T. Jackson, Hammermill Paper Co., Erie, Pa., whose company has done some of the most complete research work in plastics of any company in the paper indus-

### PLASTICS INDUSTRY DOLLAR VOLUME



The above diagram is drawn from figures issued by the HERCULES POWDER COMPANY and shows how two well-established plastics materials shared in dollar volume of the plastics industry in 1939. Cellulose acetate is made largely from wood pulp. Nitrocellulose to a lesser degree also is made from wood pulp.

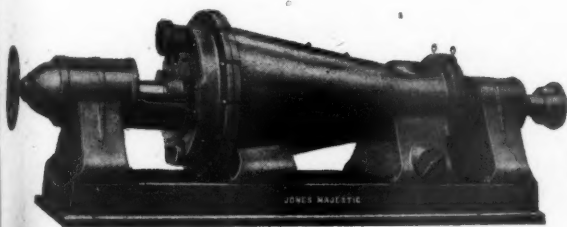




## FOR Tomorrow's Planning...

*investigate the*  
**JONES JORDANS**  
*Today*

When planning for tomorrow's faster production at lower cost, you will do well to look searchingly today into the many advantages of the Jones Jordan. For now is the time to consider replacing your obsolete Jordans. When peace comes, scores of mill executives and engineers will be striving to get quick delivery of new Jordans. And those who are planning their future needs now will be first to meet post war competition by the use of equipment that will help provide a more uniform pulp with a resultant higher quality finished product. If you are looking ahead, why not let a Jones sales engineer tell you about the many advantages of Jones Jordans? Write us today.



Pacific Coast Representative: PACIFIC COAST SUPPLY CO., PORTLAND, OREGON

# Jones

**E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.**  
Builders of Quality Machinery for Paper Mills



try, says of cellulose derivatives:

"The annual production being only about 50,000,000 pounds, and the manufacture of fiber for such applications being a highly specialized industry centered in a relatively few mills properly equipped for such work . . . it does not appear likely requirements will expand greatly or that it ever will become a problem of the paper industry."

In volume and direct participation of the papermaker, paper base laminates, he said, have most to offer the industry.

#### Unofficial 1943 Figures

● There have been no official figures on plastics production for war years (accompanying chart is through 1940 only) but some estimates have been made. Mr. Notron, in charts shown with this article, estimated 20,000 tons of paper laminates made last year while the pulp molding field—which he calls potentially bigger than all others—produced only about one million tons.

In the field of cellulose derivatives, he estimated a production of 27,500 tons of cellulose acetate in 1943, of which, he believes, nearly all was made of wood pulp. He estimated that nitrocellulose—probably half of it made from wood pulp—totalled 30,000 tons in 1943. Other cellulose derivatives, also made partly from wood pulp, he reported as totaling projected for about 18,000 tons in 1944.

Mr. Norton's figures are based on plastic grade stage of production. The basic material of these products would be only 30 to 60 per cent of the weight.

The following figures on U. S. consumption, given at the American Chemical Society meeting in St. Louis, Mo., on March 6, 1944, by P. F. Robb, Hercules Co., are therefore, smaller than Mr. Norton's plastic grade production figures for corresponding products:

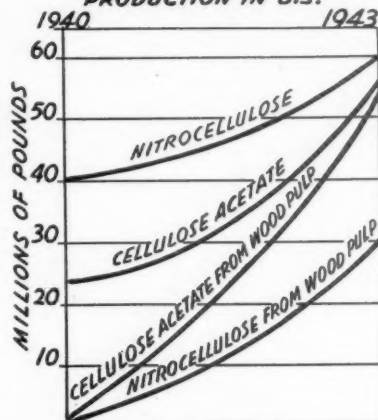
#### U. S. CONSUMPTION Plastics (Base Materials)

	1943 tons
Nitrocellulose .....	6,500
Flake Cellulose Acetate .....	14,500
Cellulose Acetate Butyrate .....	6,000
Ethyl Cellulose .....	1,250

Shortly before the close of 1943, Ralph H. Ball, Assistant Technical Director, Plastics Division, Celanese Corp., of America, made these predictions for that year:

"For the year 1943 it is believed that production of cellulosic plastics will reach 75 to 80 million pounds.

#### CELLULOSE PLASTICS PRODUCTION IN U.S.



Charts made according to estimates by A. J. Norton, Seattle consulting chemist, after studies of various sources of information. Production of other cellulose derivatives were projected for 36,000,000 tons in 1944.

For the same period the production of all other rigid thermoplastics is expected to total 40 to 45 million pounds. The celluloses, therefore, account for between 60 and 65 per cent of the volume of rigid thermoplastics. If we extend this to include thermosetting plastics, the total of all rigid plastics this year (1943) will probably reach between 255 and 280 million pounds. The cellulosic plastics comprise approximately 30 per cent of this total, being exceeded in volume only by the phenolics."

In comparing cellulosic plastics, which may be made from wood pulp, with other plastics, Dr. Ball cites three advantages of the cellulosic plastics: (1) toughness, which permits molding of thin sections, (2) variety of formulations available, and (3) range of colors available.

In a letter to PACIFIC PULP & PAPER INDUSTRY, he commented further:

"Even before the war, some wood pulp was being used in cellulosic plastics, although the principal raw material was cotton linters. Since the war the conversion to wood pulp has been accelerated, due to the shortness in the supply of linters, and to improvement in the quality of pulp. There is still need for further improvement in wood pulp before it can be used in plastics interchangeably with linters. The major defects of cellulose ester plastics made from pulp are inferior color and clarity. Their use has, therefore, been limited to films and foils and to darker pigmented colors. Even with these limitations the consumption of wood pulp has been substantial."

Some more interesting figures on plastics are given by R. V. Haslanger, Plastics Division, Monsanto Chemical Co., Springfield, Mass., whose conclusions on possible applications in the pulp and paper industry follow:

"Alpha cellulose from wood pulp is used in thermosetting molding compounds because of color requirements. It is used in laminates because it contributes strength and in some instances again because of color. Lignin enriched fillers are being investigated because of the plastic properties contributed by the lignin.

"In the cellulose plastics, alpha cellulose from sulphite pulp is limited to applications where haze and color are secondary considerations. It possesses an advantage in these applications, however, from a cost angle.

"Considering these applications,

#### CELLULOSE ESTERS AND ETHERS USED IN PLASTICS MOLDING INDUSTRY

##### Ethylcellulose

Ethocel  
Hercules E. C.

Dow Chemical Co., Midland, Mich.  
Hercules Powder Co., Wilmington, Del.

##### Cellulose acetate

Bakelite  
Chemaco  
Herculoid  
Fibestos  
Lumarith  
Nixonite  
Plastacele  
Tenite I

Bakelite Corporation, New York, N. Y.  
Chemaco Corporation, Berkeley Heights, N. J.  
Hercules Powder Co., Wilmington, Del.  
Monsanto Chemical Co., Springfield, Mass.  
Celanese Celluloid Corporation, New York  
Nixon Nitration Works, Nixon, N. J.  
E. I. du Pont de Nemours & Co., Inc.  
Tennessee Eastman Corporation, Kingsport, Tenn.

##### Cellulose acetate butyrate

Tenite II

Tennessee Eastman Corporation, Kingsport, Tenn.

##### Cellulose nitrate

Celluloid  
Hercules C. N.  
Nitron  
Nixonoid  
Pyralin

Celanese Celluloid Corporation, New York, N. Y.  
Hercules Powder Co., Wilmington, Del.  
Monsanto Chemical Co., Springfield, Mass.  
Nixon Nitration Works, Nixon, N. J.  
E. I. du Pont de Nemours & Co., Inc.





*and every "egg" is part PAPER*

For every 500-pound bomb, twelve pounds of paper are needed for rings, fins, tops and bottoms. Paper makes the protective bands and the fin locknut protectors.

The bomb-body shipping bands (removed by hand just before the bombs are loaded into planes) are now made of paper—saving 4000 tons of steel each month. These paper bands are waterproof—able to stand terrific heat (up to 600°). And they withstand the drop test better than the steel rings previously used.

In the all-out bombing program of enemy objectives, paper thus plays another vital role! It's another production problem solved by paper—another way in which the essential paper industry is playing its part in the vast war program.



**F. C. HUYCK & SONS**

**Kenwood Mills**

**Albany New York**

F. C. Huyck & Sons is proud to be serving an industry so essential to the war program. Our skill, our facilities and our 72 years of experience are always available in solving the special felt problems created by urgent wartime paper needs.

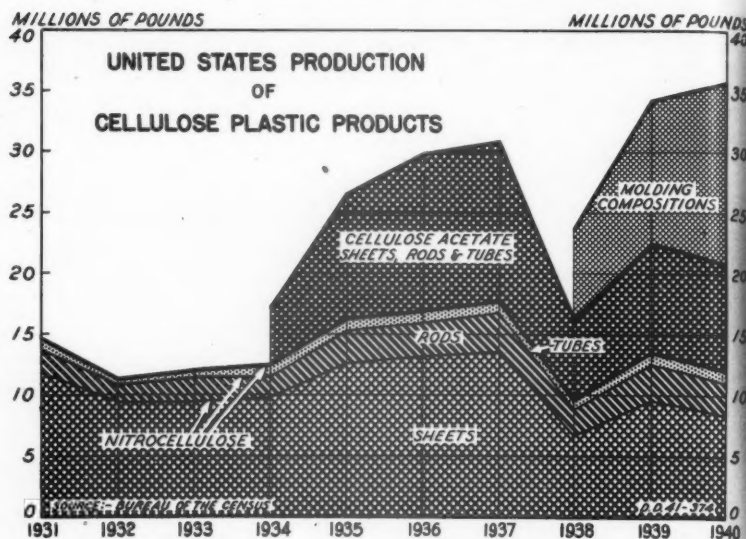


how does the plastics industry stand as a potential customer of the pulp and paper industry? The total volume of the plastics industry is small indeed when compared to the pulp industry. The total production of plastics—exclusive of synthetic rubber, synthetic fibers, and similar border-line fields—was in 1941 approximately 300 million pounds, as compared to pulp production of 11½ million tons in 1942. In other words, the total plastics industry production is only one per cent of the pulp production. The total volume of pulp and paper used in 1941, as fillers for the thermosetting resins and as raw material for cellulose nitrate, amounted to about 25 million pounds or only about 0.1% of the pulp production."

Dr. Jackson, in concluding his study, sees a "constantly increasing demand for pulp and paper to be combined with resins."

"The fulfilling of these demands offers a particularly attractive outlet for the products of the paper industry, if we are willing to spend time and money on the improvement and merchandising of these special type products."

Three fields in which paper laminates and pulp molds should have extensive use, nearly all observers agree, are in automobiles, airplanes and housing. The pulp and paper industry already is contributing in important ways to the airplane industry in its constant effort to re-



duce plane dead weight. Henry Ford has already pioneered plastics in the automobile industry and this is fully expected to continue. The housing boom anticipated after the war offers a natural outlet for paper and fiber moldings and laminates. Everything from bathtubs to refrigerators can be made of these products.

### Postwar Holds Promise For Phenolic Resin Board

● Phenolic resin boards, produced on standard paper making machinery, are being used in many important industrial applications. Wartime products made

with such boards and blanks are spectacular—but post-war uses may be even more interesting.

Authorities state they may be used to make doors for automobiles and refrigerators, for example. The Ford Motor Company has done considerable experimenting with Bakelite-Rogers boards for automobile body parts. Toughness, high impact strength and moisture resistance fit them for hard service.

Telephone ear and mouth pieces, Army knife handles, refrigerator door latches, controller switches are some of many interesting products.

The Rogers Paper Manufacturing Co., Manchester, Conn., produces Bakelite phenolic impregnated boards by the wet cylinder method in various molded thicknesses ranging from .031" to .145". These sheets are normally manufactured in a size of 48" by 66". Rogers Co. supplies sheets, strips and blanks to the molding trade. The materials are sold and serviced by Bakelite Corp.

In the "wet machine" manufacture, the resin is thoroughly dispersed throughout the pulp in the beater. In the past the resin blanks, punched from board stock, were employed in combination with molding powders. But later developments indicate the board can be used alone for complete moldings.

The following are the general properties of resin board: Physical (Molded):

Special Gravity 1.35, Weight per cu. in. 22.2 gms.

Tensile Strength 3000 to 11,000 lbs. per sq. in.

Modulus of Elasticity (1.1 to 1.6) by 10 lbs. per sq. in.

Impact Strength—Energy to break with grain 0.8 to 1.0; across grain 0.3 to 0.45 ft. lbs.

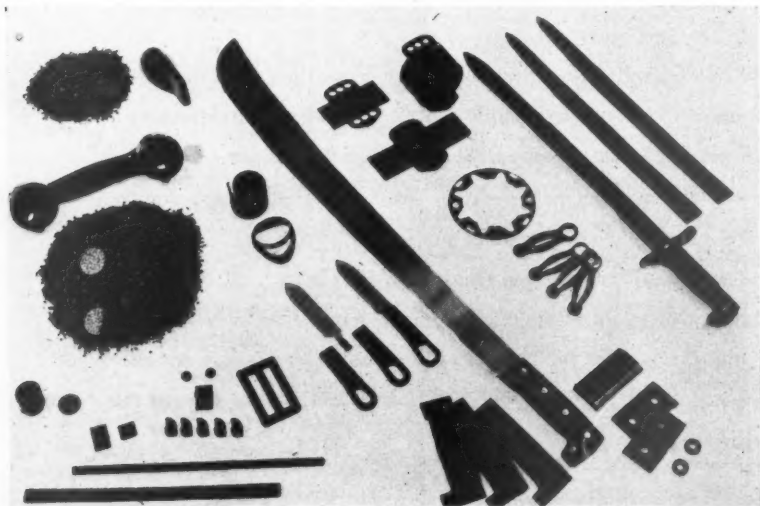
Impact Strength—Ft. lbs. per inch square—with grain 10.0 to 12.5; across grain 3.7 to 5.6

Molding Shrinkage .002 to .005 in. per in. (less shrinkage with grain than across grain)

Flexural Strength 13,000 to 25,000 lbs. per sq. in.

Water Absorption Gain in 24 hrs. .03 to .05 per cent

Heat Resistance—Not recommended for use where molded parts are to be subjected to temperatures higher than 302 deg. F. (150 deg. C.)



ROGERS PAPER MANUFACTURING CO., Manchester, Conn., makes tough phenolic impregnated boards, strips and blanks for the plastic molding trade. The telephone mouth and ear piece at upper left is molded by Shaw Insulator Co., Irvington, N. J., from board diced into tiny squares of 3/32". Diced or macerated resin board is shown above and below the phone piece. The machete shown above is made from strips supplied to Collins Co., Collinsville, Conn., which fabricates blanks to various sizes and molds handles, which are assembled by riveting. Long navy training bayonets are made entirely of this plastic material, releasing thousands of steel bayonets for actual service.



POUNDS  
40  
35  
30  
25  
20  
15  
10  
5  
0  
1940

spectac  
be even  
used to  
d refrig  
d Motor  
e experi  
ards for  
ess, high  
resistance

es, Army  
latches,  
of many

ring Co.  
Bakelin  
by the  
molded  
to .145".  
ufactured  
gers Co.  
s to the  
are sold

ufacture,  
through  
the par  
n board  
abination  
ater de  
can be  
gs.

al prop  
(Molded):  
per cu

.000 lbs

1.6) by

reak with  
in 0.3 to

per inch  
to 12.5;

.005 in.  
th grain

25,000

hrs. 0.3

mmended  
are to be  
higher  
C.)



# Looking AHEAD

- HIGH WET STRENGTH PAPERS
- MULTI-WALL PAPER BAGS
- TWISTING PAPER FOR BINDING TWINE
- WATERPROOF CONTAINERS
- LIGNIN LAMINATES
- HIGH STRENGTH PAPER LAMINATES
- FIBER CANS AND DRUMS
- LIGHTER BASIC WEIGHT PAPERS

The Pulp and Paper Industry has given much to the war effort. By developing new paper and paperboard uses, serious shortages in burlap, lumber, steel, and other critical materials have been overcome. Some of these new uses are war babies, but others will thrive because of their merit and their contribution to progress.

In charting your post-war plans, consider the help we at Hooker may be able to give:

Since the formation of the Hooker Electrochemical Company thirty five years ago, we have

enjoyed working with the Paper Industry on paper chemistry. Our research into methods of Chlorination has led to improved techniques of sulphate pulps and different methods for sulfite pulps. We now make chemicals for slime control, pH control, water treatment, bleaching, wire screen cleaning and plasticizers for paper impregnating. We can make many more. Let us add our paper chemical experience to yours in looking for new answers to old problems. For technical advice or information on Hooker Chemicals, ask for list PP-5.

- Bleaching Powder • Caustic Soda • Chlorinated Paraffin • Chlorine
- Muriatic Acid • Sodium Sulfide



**HOOKER ELECTROCHEMICAL COMPANY**  
NIAGARA FALLS, N. Y.  
NEW YORK, N. Y. • TACOMA, WASH. • WILMINGTON, CALIF.



# HOOKER CHEMICALS



## PULPWOOD RESOURCES: Pacific Northwest And Southern States Have Extensive Stands

**A**CCOMPANYING tables on Washington and Oregon pulpwood resources—available for cutting and other than Douglas fir—are up-to-date, having been just recently revised for 1944.

Also in this department we are publishing for the first time the most recent available data on pulpwood stands for the entire United States. These figures, as prepared by the U. S. Forest Service, indicate fairly well the distribution of pulpwood species in different regions.

It will be noted that stands of southern yellow pine were far more extensive in quantity than any other species. All pulping species in the south totaled nearly one billion cords. The Pacific Northwest was far ahead of other regions but had only a little more than half the pulp timber as the much larger southern area.

Western Washington and Oregon tables do not include timber on municipal watersheds, state and national forests, national parks, etc., which, because of laws or declared public policy, is not available for commercial use.

In this region there is about 75 billion cubic feet of Douglas fir, over twice the volume of the true pulping species. This species is not included, but in view of recent progress in the pulping of this wood experimentally, it should be considered when analyzing the timber available for future use.

These figures are from data prepared by the Pacific Northwest Forest and Range Experiment Station, U. S. Forest Service, Portland, Ore., based on forest surveys started in 1930, and completed in 1933 and 1934. The results were first published in the Review Number of this journal in 1937, and revised in each Review Number since then. References may be made to the 1938 issue for greater detail as to the forest study.

Since completing the survey the experiment station staff has brought the inventory of the forests of the majority of the counties in the region up to date through field examination. To date the reinventory has been completed for the following 26 counties in which cutting depletion has been heaviest: Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, Skagit, Snohomish,

### Volume of Pulp Woods, Other Than Douglas-Fir, In Western Washington and Western Oregon Available for Cutting, by County\* (In thousands of cubic feet†)

WASHINGTON		OREGON	
County—		County—	
Clallam .....	2,741,000	Benton .....	34,000
Clark .....	33,000	Clackamas .....	1,087,000
Cowlitz .....	881,000	Clatsop .....	1,163,000
Grays Harbor .....	2,567,000	Columbia .....	36,000
Island .....	9,000	Coos .....	310,000
Jefferson .....	2,237,000	Curry .....	187,000
King .....	2,051,000	Douglas .....	1,548,000
Kitsap .....	19,000	Hood River .....	292,000
Lewis .....	2,067,000	Jackson .....	958,000
Mason .....	334,000	Josephine .....	107,000
Pacific .....	1,832,000	Lane .....	1,330,000
Pierce .....	1,187,000	Lincoln .....	471,000
San Juan .....	11,000	Linn .....	1,417,000
Skagit .....	1,699,000	Marion .....	505,000
Skamania .....	1,831,000	Multnomah .....	30,000
Snohomish .....	2,176,000	Polk .....	163,000
Thurston .....	31,000	Tillamook .....	761,000
Wahkiakum .....	438,000	Washington .....	42,000
Whatcom .....	986,000	Yamhill .....	21,000
<b>Total .....</b>	<b>23,130,000</b>	<b>Total .....</b>	<b>10,462,000</b>

\*Compiled by Pacific Northwest Forest and Range Experiment Station from Forest Survey data adjusted for estimated depletion by cutting to 1943.

†Includes all trees 4 inches and more diameter breast high.

### Volume In Thousand Cubic Feet<sup>1</sup> of Pulpwood Other Than Douglas-Fir In Western Washington and Western Oregon, Available for Cutting,<sup>2</sup> by Species Groups<sup>3</sup>

Species—	Western Oregon	Western Washington	Total
Western hemlock .....	5,413,000	15,525,000	20,938,000
Sitka spruce .....	748,000	1,153,000	1,901,000
Balsam fir <sup>4</sup> .....	3,425,000	6,011,000	9,436,000
Mt. hemlock, Engelmann spruce .....	804,000	313,000	1,117,000
Black cottonwood .....	72,000	128,000	200,000
<b>Total .....</b>	<b>10,462,000</b>	<b>23,130,000</b>	<b>33,592,000</b>

<sup>1</sup>Includes all trees 4 inches and more, diameter breast high.

<sup>2</sup>Excludes timber reserved from cutting in municipal, State and Federal ownership.

<sup>3</sup>Data from Pacific Northwest Forest and Range Experiment Station. Based on Forest Survey inventory of 1933 adjusted for estimated cutting depletion, 1934-1942, inclusive.

<sup>4</sup>Includes Pacific silver fir, grand fir, noble fir, Shasta red fir, white fir and alpine fir.

Thurston, Wahkiakum, and Whatcom Counties, Washington; Benton, Clatsop, Columbia, Coos, Lane, Lincoln, Polk, Tillamook, Washington and Yamhill Counties, Oregon. The reinventory in Linn, Clackamas, and Marion Counties, Oregon, will be completed later this year. It is expected that the reinventory of the remaining counties will be completed at the rate of three to five counties each year.

Figures on the counties named are based on the reinventory. The other counties have been brought up to date by adjusting for estimated depletion since the original survey, the

depletion being determined from the timber cut figures.

Although the data are partially based on estimates of depletion, the figures have been rounded to thousands of cubic feet, and because of the large volume, the percentage of error can be considered relatively small. The tables are sufficiently accurate for all practical purposes.

The cubic foot volume estimates give the total sound wood content of the stem of the tree, exclusive of bark and limb wood. Decayed material is omitted, as well as the entire volume of all cull logs having more than two-thirds of the



## U. S. STAND OF PRINCIPAL SPECIES NOW COMMONLY KNOWN IN PULP AND PAPER MANUFACTURE

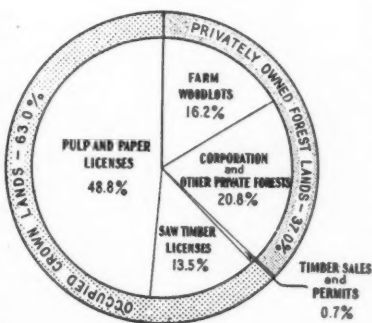
Kind of Wood	Total	North-eastern (thousand cords)	Central	Lake	South	Pacific Northwest
<b>Softwoods:</b>						
Spruce and Fir <sup>1</sup> .....	542,314	50,961	-----	29,997	1,400	248,593
Hemlock.....	330,288	19,567	59	33,774	9,800	267,088
So. Yellow Pine.....	630,795	8,751	1,993	-----	620,051	-----
Other Pines.....	78,534	38,765	18	35,567	4,184	-----
Tamarack.....	3,093	14	-----	3,079	-----	•
Total.....	1,585,024	118,058	2,070	102,417	635,435	515,681
<b>Hardwoods:</b>						
Cottonwood <sup>2</sup> .....	66,118	12,342	892	43,776	5,614	3,221
Yellow Poplar.....	49,917	3,490	996	-----	45,431	-----
Birch <sup>3</sup> .....	296,383	183,816	10,355	88,162	14,050	-----
Gum.....	249,685	2,601	1,967	-----	245,117	-----
Total.....	662,103	202,249	14,210	131,938	310,212	3,221
All Species.....	2,247,127	320,307	16,280	234,355	945,647	518,902

<sup>1</sup>Total includes 104,034 thousand cords in California and 107,329 thousand cords in South Rocky Mt. region. <sup>2</sup>And Aspen. <sup>3</sup>And Beech and Maple.  
Source: U. S. Forest Service, 1936-38 Revision.

board-foot content defective. No damage in logging.

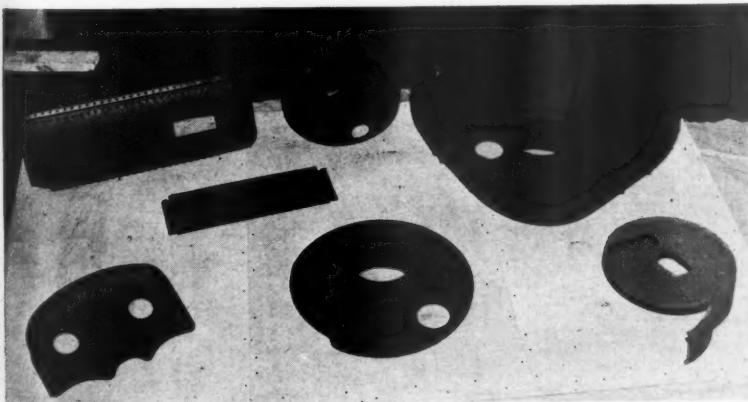
The ratio of timber in the various production is made, however, for break-ownership classes remains about the same as in previous years. Approximately 45 per cent is privately owned, 43 per cent on national forest lands and 12 per cent on other public lands such as county, state, Indian reservations, etc.

The accompanying table on the Inland Empire pulpwood stands—furnished by the Rocky Mountain Forest & Range Experiment Station in Missoula, Mont., is considered as up-to-date after being revised in 1943. M. Bradner, director of the Missoula Station, wrote PACIFIC PULP & PAPER INDUSTRY a few weeks ago that the volume for 1944 is about as shown.



## OWNERSHIP OF CANADA'S OCCUPIED FOREST LANDS

Nearly half are licensed to pulp and paper industries. Over 38 per cent of Canada's area grows what is rated as merchantable timber.



LAMINATED PAPER PLASTIC GUN TURRET ASSEMBLY PARTS made by the McDONNELL AIRCRAFT CORP., St. Louis. Note seat in lower left. Gun shields at lower right and upper center.

Says L. H. RITTER, Service Engineer, Plastics Division of McDonnell: "We derive our unusually high strength by aligning fibres in a spruce sulfite paper and impregnating with only 35% phenolic resin. This impregnated "aircraft grade" paper is then molded at a temperature of approximately 300° under 250 pounds per square inch pressure. We can mold various shapes, including compound curvatures, on relatively inexpensive zinc alloy dies because of the low pressures we use. We think this material will have applications in diversified fields after the war."

# INLAND EMPIRE PULPWOOD\* By Species and Locality in Thousands Cubic Feet

Subregion/	Engelmann spruce				Hemlock				Balsam firs				Black cottonwood				All species	
	Saw-timber trees	Cordwood trees	Total	Saw-timber trees	Cordwood trees	Total	Saw-timber trees	Cordwood trees	Total	Saw-timber trees	Cordwood trees	Total	Saw-timber trees	Cordwood trees	Total	Saw-timber trees	Cordwood trees	Total
	----- Thousand Cubic Feet -----																	
Northeastern Washington	15,600	14,200	29,800	24,000	22,300	46,300	27,500	42,300	69,800	110	50	160	67,210	78,850	146,060			
North Idaho	474,000	129,000	603,000	198,000	183,000	381,000	1,250,000	472,000	1,722,000	9,000	1,000	10,000	1,931,000	785,000	2,716,000			
Western Montana	676,000	151,000	827,000	27,000	27,000	54,000	111,000	124,000	235,000	36,000	6,000	42,000	850,000	308,000	1,158,000			
Total for Inland Empire	1,165,600	294,200	1,459,800	249,000	232,300	481,300	1,388,500	638,300	2,026,800	45,110	7,050	52,160	2,848,210	1,471,850	4,320,060			

\*Based on data from Rocky Mountain Forest & Range Experiment Station, U. S. Forest Service, Missoula, Mont., for non-reserved commercial forests as of Jan. 1, 1943. It is estimated that pulp species has been offset by growth during the past year and therefore the volume in 1944 is as shown above. Data includes sound wood volume from pulp mills at all trees less than 9 inches d.b.h. The cottonwood estimate includes also 2 inch d.b.h. to saw-timber size, and larger diameter. Saw timber includes coniferous trees larger than 13 inches d.b.h. and cottonwood trees larger than 11 inches d.b.h.; cordwood includes the remainder of all trees less than 9 inches d.b.h. in the Northwest. Northern Washington consists of Spokane, Stevens and Pend Oreille Counties. Northern Idaho is the portion north of the Salmon River; western Montana is the portion west of the Continental Divide.







# PAYROLLS: Pacific Coast Leads In Both Weekly and Hourly Earnings

Middle Atlantic and Lake States industry regions are next highest in average weekly earnings of employes . . . On hourly average, the mills of the Southern Atlantic states rank next to Pacific Coast . . . Labor peace in industry is maintained generally throughout 1943.

**A**LREADY well above the wage standards of the industry anywhere else in the world, the Pacific Coast pulp and paper industry boosted its wage scales to new high levels in 1943.

With the approval of the federal labor boards, annual incomes of about 14,000 employes of the mills in the Pacific Coast states of Washington, Oregon and California were boosted by almost \$2,000,000.

Across the board increases of 5 cents an hour were granted to employes with six months' service, retroactive to June 1, 1943. These employes had been granted ten cents an hour increase the previous year. In 1943 the employes with less than six months' service were given 7½ cents an hour increases.

This latest boost in pay culminated more than eleven years of harmonious relations between the Association of Pacific Pulp & Paper Manufacturers and two American Federation of Labor brotherhoods. Every spring they have conducted

## Average Hourly Earnings in Cents of Productive Employees (Exclusive of Converting Employees) in Pulp and Paper Manufacturing.

Source: Calculated from tables received from A.P.P.A.)

	June to December Inclusive						
	1937	1938	1939	1940	1941	1942	1943
Pacific Coast	79.7	79.6	79.8	83.8	94.7	106.9	114.7
All Other U. S. Regions	62.3	61.3	61.6	65.0	72.6	81.2	86.5
North East (New England)	62.4	60.8	61.2	64.0	71.5	79.3	84.0
Middle Atlantic	65.0	63.9	64.3	67.6	76.2	85.2	89.4
Lake States	65.2	65.0	65.6	68.0	74.7	82.1	86.0
Central (North)	61.7	62.6	62.4	64.4	71.9	78.7	83.1
Central (South)	55.9	54.9	55.1	59.5	66.5	76.2	79.5
Southern (East)	56.9	57.3	55.9	61.7	74.0	84.2	94.8

## Average Weekly Earnings of Productive Employees (Exclusive of Converting Employees) in Pulp and Paper Manufacturing.

(Source: Calculated from tables received from A.P.P.A.)

	June to December Inclusive						
	1937	1938	1939	1940	1941	1942	1943
Pacific Coast	\$29.60	\$26.49	\$30.12	\$32.33	\$36.54	\$43.71	\$50.40
All Other U. S. Regions	23.85	23.19	24.65	26.11	30.23	33.55	38.27
North East (New England)	23.88	22.39	24.27	24.35	29.78	32.63	38.59
Middle Atlantic	24.72	24.04	26.74	26.29	31.97	35.84	41.11
Lake States	25.79	25.17	26.62	27.52	31.18	34.15	39.15
Central (North)	23.65	23.41	25.23	26.03	31.04	31.73	37.19
Central (South)	21.09	20.79	21.85	23.25	27.22	30.34	34.32
Southern (East)	20.98	21.39	21.82	24.52	28.88	34.71	35.01

negotiations in open meetings which are regarded as models of collective bargaining.

The only dark spot on an otherwise unbroken record of labor peace

on the Pacific Coast was the abortive attempt of a CIO union to break into the picture at the Hoquiam, Wash., mill of Rayonier Incorporated during 1943-4. This re-

## STATE OF OREGON Payrolls and Employment 1927-1943\* PULP AND PAPER MANUFACTURING

Year	Payroll	Work Days	Approximate Number Employees
Fiscal Year 1927-1928	\$2,691,220.18	581,833	1,939
Fiscal Year 1928-1929	2,946,218.92	640,724	2,136
Six Mos. July to Dec., 1931, Inc.	1,017,435.13	235,114	1,566
Calendar Year 1932	1,896,692.09	504,311	1,681
Calendar Year 1933	1,819,904.95	535,789	1,786
Calendar Year 1934	2,577,436.84	700,842	2,336
Calendar Year 1935	2,984,889.22	778,547	2,837
Calendar Year 1936	3,578,624.01	839,063	2,697
Calendar Year 1937	4,298,917.22	857,696	2,861
Calendar Year 1938	3,207,313.93	596,405	2,052
Calendar Year 1939	3,089,061.69	580,161	2,044
Calendar Year 1940	3,910,458.40	674,075	2,338
Calendar Year 1941	4,800,939.96	742,011	2,577
Calendar Year 1942	5,465,656.77	759,156	2,622
Calendar Year 1943	6,372,006.72	769,693	2,695

\*Statistics furnished by the Oregon State Industrial Accident Commission.  
Data from July 1, 1929, to June 30, 1931, not available.



# STATE OF WASHINGTON PAYROLLS AND HOURS WORKED

1927-1943

ALL HAZARDOUS INDUSTRY OF STATE					LUMBERING					PULP AND PAPER MANUFACTURING				
Year.	Increase or Decrease Compared With Preceding Year			Workmen	Increase or Decrease Compared With Preceding Year			Workmen	Hours	Increase or Decrease Compared With Preceding Year			Workmen	Hours
	Payroll	Hours	Payroll Hours Work		Payroll	Hours	Payroll Hours Work			Payroll	Hours	Payroll Hours Work		
1927	\$255,669,929	396,071,584	4.53%	130,841,328	\$83,446,482	130,841,328	-2.19%	7,710,848	\$4,855,526	7,710,848	14.78%	10.33%	7,710,848	14.78%
1928	271,223,403	414,002,480	6.08%	127,973,488	83,782,300	127,973,488	4.0%	8,507,600	5,573,223	8,507,600	14.78%	10.33%	8,507,600	14.78%
1929	288,903,912	437,600,400	6.52%	131,720,152	86,986,842	131,720,152	3.82%	12,275,072	7,845,335	12,275,072	40.77%	44.28%	12,275,072	40.77%
1930	260,002,808	397,369,096	-9.19%	98,102,528	63,093,612	98,102,528	-28.45%	13,874,832	9,110,285	13,874,832	16.12%	13.03%	13,874,832	16.12%
1931	188,705,890	317,120,680	-27.42%	64,161,624	33,236,663	64,161,624	-47.32%	11,360,944	6,990,889	11,360,944	-23.26%	-18.12%	11,360,944	-23.26%
1932	131,893,000	255,078,920	-30.11%	41,214,176	16,853,140	41,214,176	-49.29%	8,960,224	5,063,638	8,960,224	-27.57%	-21.13%	8,960,224	-27.57%
1933	129,023,888	260,928,662	-2.18%	51,066,187	23,101,145	51,066,187	37.07%	9,693,579	5,166,375	9,693,579	2.03%	8.18%	9,693,579	2.03%
1934	161,702,804	284,179,483	25.33%	51,106,876	29,693,289	51,106,876	28.54%	11,835,457	7,435,151	11,835,457	43.91%	22.10%	11,835,457	43.91%
1935	187,578,233	312,935,429	16.00%	57,808,831	37,389,039	57,808,831	19.18%	12,560,285	8,131,888	12,560,285	9.37%	6.12%	12,560,285	9.37%
1936	241,960,112	379,926,777	28.99%	77,214,714	51,799,595	77,214,714	46.32%	14,638,927	9,838,151	14,638,927	21.23%	16.55%	14,638,927	21.23%
1937	286,480,085	412,743,811	18.40%	77,777,272	58,947,801	77,777,272	13.80%	16,305,933	12,607,622	16,305,933	27.89%	11.37%	16,305,933	27.89%
1938	267,784,196	379,432,496	-6.53%	55,718,862	43,719,909	55,718,862	-25.93%	12,254,194	10,227,766	12,254,194	-18.88%	-24.85%	12,254,194	-18.88%
1939	303,602,602	413,236,113	+13.38%	63,648,087	50,275,519	63,648,087	+14.99%	14,197,262	11,919,822	14,197,262	+16.54%	+15.86%	14,197,262	+16.54%
1940	345,887,756	458,512,732	+10.96%	70,377,299	56,867,830	70,377,299	+13.11%	16,905,387	14,517,595	16,905,387	+21.79%	+19.07%	16,905,387	+21.79%
1941	475,291,383	561,751,286	+22.52%	76,588,933	69,603,895	76,588,933	+22.40%	18,234,058	17,236,948	18,234,058	+18.73%	+7.86%	18,234,058	+18.73%
1942	815,109,078	776,362,062	+38.20%	77,716,748	82,368,711	77,716,748	18.34%	19,642,765	20,724,118	19,642,765	+20.23%	+7.73%	19,642,765	+20.23%
1943	1,120,516,847	947,602,553	+22.06%	71,838,417	88,451,612	71,838,417	+7.38%	16,787,877	19,879,950	16,787,877	-4.07%	-14.53%	16,787,877	-4.07%

Industry as a whole: Payroll in 1943 was 338.3% more than in 1927 while hours worked show an increase of 139.3%.

Lumbering Industry: Payroll and hours worked respectively in 1943 were 6% and 45.1% less than in 1927.

Pulp and Paper Mfg.: Payroll and hours worked respectively in 1943 were 309.4% and 117.7% greater than in 1927.

Source: Department of Labor and Industries, State of Washington.

## PACIFIC PULP & PAPER INDUSTRY MAY

sulted in a ten-day work stoppage in April and a 60-day strike this past winter. Several times the National War Labor Board turned down CIO applications for recognition and finally this decision of the Washington board—which has been so much in the news of late—was made to stick. Regardless of the claimed strength of the CIO locally in Hoquiam, the War Labor Board maintained the uniform agreement obtained by the AFL for the entire Pacific Coast (US) should be upheld.

On the entire labor front in North America, there were isolated but serious strikes in eastern Canadian mills. A John L. Lewis United Mine Workers catch-all union was bidding for members in some of the eastern U. S. mills.

### Pays Good Wages

On the whole, unusually high wages for any industry were paid by pulp and paper mills, if the comparison excepts the new, booming war industries of probable temporary duration.

The entire United States pulp and paper industry is estimated as paying well over \$300,000,000 in wages and salaries to less than 300,000 workers. For an estimated 25,000 employees on the Pacific Coast, including British Columbia—in mills and plants from Los Angeles to Ocean Falls, B. C.—were estimated to have received about \$50,000,000 last year.

The average hourly earnings of productive employees in pulp and paper mills of Washington, Oregon and California was \$1.15 cents in 1943 as compared with 86.5 cents in the remainder of the United States. Mills in Southern Atlantic seaboard area were next highest with a rate of about 95 cents an hour. The Middle Atlantic states paid about 90 cents an hour. About 80 cents in the Deep South was lowest. These hourly rates disclose great advances since 1936 when the Pacific Coast scale was about 70 cents, the entire South about 48 cents and the Middle Atlantic states about 60 cents.

Weekly earnings, however, tell quite a different story. The Pacific Coast leads with an average earning of \$50.40, the Middle Atlantic states next with \$41.11 and the Lake states third with \$39.15. The Southern states were lowest in weekly earnings at around \$35.

### Canadian Pay Data

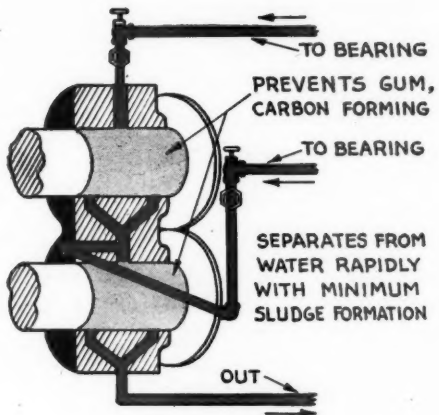
● According to official Canadian figures the total payroll of about 30,000 employees was nearly \$70,





# STANDARD ENGINEERS NOTEBOOK

VOL. 1-PA. NO. 3



## Turbine Oil relieves gum and sludge trouble

When high- or medium-speed bearings are subjected to moisture or temperature conditions, Calol Turbine Oil 19 will solve much of the usual gum carbon and sludge trouble. It separates rapidly from water. Because it is highly resistant to oxidation, contact with water forms a minimum of sludge. When it is subjected to heat, it forms practically no gum carbon. In the pulp and paper manufacturing industry, it has proved exceptionally efficient in the lubrication of various types of bearings in Beater and Jordan fans, Dryers and Felt Rolls, and Calendars.

Calol Turbine Oil 19 is a medium-heavy-bodied oil--SAE 30 grade--a selected mineral oil that has been solvent refined and filtered.

## Conditions determine Chain Drive Lubricant

The type and condition of the chain, lubricating system used, degree of exposure to the elements and temperature are considered when selecting a Chain Drive Lubricant. Typical recommendations made by Standard of California are listed here in a handy chart form.

ROLLER AND BLOCK CHAINS		
Operating Conditions		
TEMP.	WORN OR SUBJECT TO DIRT DUST, WATER, ETC.	
HIGH	Calol Pinion Grease O	
MED.	Calol Roller Oil X	
LOW	Calol Journal Oil 135	
	CHAINS ENCLOSED	
HIGH	Calol Journal Oil 165	
MED.	Calol Journal Oil 135	
LOW	Calol Journal Oil 35	

SILENT CHAINS		
TEMP.	CHAINS EXPOSED	
	WORN	NEW
HIGH	Calol Roller Oil X	Calol Jrnl. Oil 135
MED.	Calol Jrnl. Oil 135	Calol Jrnl. Oil 35
LOW	Calol Jrnl. Oil 35	Calol Jrnl. Oil 25
	CHAINS ENCASED	
	OIL BATH	SPLASH
HIGH	Calol Jrnl. Oil 135	Calol Jrnl. Oil 35
MED.	Calol Jrnl. Oil 35	Calol Jrnl. Oil 25
LOW	Calol Jrnl. Oil 25	Calol Jrnl. Oil 14



## STATE OF CALIFORNIA

Employment and Payroll Data in the Paper and Paper Products Manufacturing Industry  
1943\*

Based on All Contribution Reports Submitted to the Department prior to February 25, 1944

Industry	Total wages paid	Number of establishments (a)	Number of Workers											
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total .....	\$19,194,995	136	8,294	8,109	8,282	8,208	8,269	8,742	8,594	8,519	8,601	8,553	8,580	8,245
Coated and Glazed Paper .....	1,488,545	8	802	807	794	664	668	684	692	686	672	654	635	634
Paper Envelopes .....	1,809,274	14	832	819	832	834	840	854	842	828	791	774	766	780
Paper Bags .....	1,386,903	13	761	722	670	712	737	781	769	783	743	729	750	740
Paperboard Containers and Boxes ..	11,050,975	58	4,419	4,369	4,548	4,549	4,633	4,915	4,825	4,767	4,837	4,812	4,842	4,545
Pulp Goods, and Paper Products, not elsewhere classified (b) .....	3,459,298	43	1,480	1,392	1,438	1,449	1,391	1,508	1,466	1,455	1,558	1,584	1,587	1,546

(a) Each branch of a multiple establishment-concern is counted as a separate establishment.

(b) Includes branches of such firms as pulp mills, paper mills, and paperboard mills.

\*California Department of Employment affiliated with Social Security Board Report 127A No. 47. Research and Statistics April 27, 1944.

000,000 in 1942, the last year on record. However, this includes considerably lower figures for British Columbia than were officially listed by that province for 1943. The west coast payroll was listed as \$9,857,421 for more than 5,700 employees

for that year. Because of inclusion of converters in some cases and estimates of different years, it probably would be unfair to make any comparisons between regional or Canadian and U. S. figures.

EMPLOYMENT STATISTICS  
IN THE INDUSTRY IN  
BRITISH COLUMBIA

Base 1926 = 100%

Dominion Bureau of Statistics—Ottawa—figures supplied by the Dominion Bureau of Statistics covering the pulp and paper industry in British Columbia, including all employees.

Year	Average Monthly Employment	Percentage
1926 .....	3,055	100.0%
1941 .....	3,574	117.0%
1942 .....	4,261	139.4%
1943—figures not yet available.		

B. C. Department of Labor—figures compiled from returns made to the Provincial Department of Labor, and representing wage-earners only.

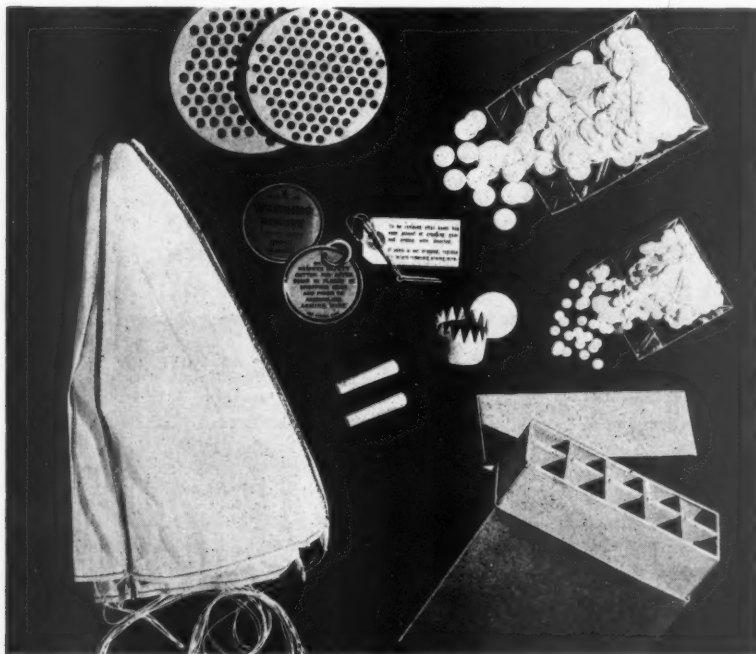
Year	Average Employment 12 Months	Percentage
1926 .....	2,838	100.0%
1941 .....	3,464	122.1%
1942 .....	4,025	141.8%
1943—figures at present in process of compilation.		

## Standardization Urged

● A comment in the magazine, Chemical & Metallurgical Engineering.

"What has been accomplished with the use of paper products is truly remarkable. Developed as substitutes for metal, fiber or wood containers, many are proving far superior to the older materials in the wartime services they are rendering. The same severe tests have, however, eliminated other substitutes which need no longer demand serious consideration. These are lessons that industry should now be studying.

"It is not too soon to revive and revise our thinking about the standardization of packaging and package sizes. Here the National Bureau of Standards is in an enviable position to help and is desirous of promoting sound policies through the cooperation of government and industry.



MADE BY THE WAR PRODUCTS DIVISION, DENNISON MANUFACTURING CO., Framington, Mass., several of the above objects are on display at the Paper Division, War Production Board, Washington, D. C.

The high strength paper crepe parachute on left weighs 1 lb. 5 oz.; diameter when open, 5 ft.; carries up to 50 lb. load of supplies. Above it are four-ply laminated cardboard assembly trays, perforated for use in assembling shell detonators.

Lower right: Anti-aircraft shell box with heavy inner liner and perforated inner platform to hold points of 11-pound shells in place. Above are shell primer discs.

Center group includes bomb and mine tags, and two small shellacked powder thimbles made of paper that leaves a minimum of residue on burning. The item that looks like a paper crown is a cardboard exploder. After it is filled with powder, the fringe is turned inward, the cover disc glued on.





## This Land of Ours

Land where you and I, and a hundred million others have lived and prospered in peaceful security ... Land where all may walk erect, head up and unafraid ... Land where the spirit of tolerance permits each to worship and vote as his conscience alone dictates ... Land where freedom of speech fosters just criticism and open discussion ... Land where education is available to all for the taking ... Land where a worker today is often the boss tomorrow and where opportunity awaits for all who are capable ... Land where we sleep serene when day is done 'til each new dawn awakens us with its promise of greater accomplishment ... Land where freedom prevails as in no other ... Land of which no truer words were ever said:

*My Country 'tis of thee  
Sweet Land of Liberty*



EVERETT PULP & PAPER CO. • EVERETT, WASHINGTON

ov. Dec.  
580 8,249  
635 634  
766 780  
750 740  
842 4,545  
587 1,546

STICS

cs—Ot  
he Do  
covering  
in Brit  
ll em

centage  
0.0%  
7.0%  
2.4%  
le.

figures  
to the  
Labor,  
s only.

centage  
0.0%  
1.1%  
8%  
process

Chemi-

with the  
rkable.  
l, fiber  
proving  
in the  
. The  
elimini-  
ed no  
ration.  
should

revise  
zation  
Here  
is in  
is de-  
olicies  
nment

WPA-CAMERON



## ESSENTIALITY: War Couldn't Be Fought Without Pulp and Paper

THE extent to which pulp and paper have become of vital importance to the war effort is revealed graphically in the tables on this page. In the past year, in Washington and Ottawa, there has taken place a mild revolution as far as this industry is concerned.

Pulp and paper are basically recognized as vital to the war effort. Donald Nelson, director of the U. S. War Production Board, has stated that pulp and paper, with lumber, are now the "most critical" items among war materials—that the pulp and paper industry is now in the position in relation to the war that the steel mills were a year ago and the shipbuilding industry two years ago.

Efforts are now officially bent to finding materials that will substitute for paper and pulp cellulose fibers—In more than one instance on record, steel has been ordered to replace these materials.

Pulp and paper—the basic and age-old products of industry—as well as the new ones—have come into their own. The public in the United States and Canada is more conscious of their great importance to the war and the national economy than ever before.

It is officially admitted that the war effort may be actually hampered if paperboard, rayon pulp and other products fall behind production goals of 1944. Messrs. LeRoy Neubrach and Arnold Schumacher of the U. S. Department of Commerce stated in a recent survey:

"If all pulp, paper and converted paper items were suddenly to become nonexistent the war would either end abruptly within a few months or revert to more primitive methods. Production of shells would be seriously curtailed because a large proportion of the propellant explosives are made from wood pulp (In Europe nearly all gunpowder is made from woodpulp); there would not be suitable means of transmitting complicated data or instructions; there would not be any maps; new airplanes, tanks, ships, guns could not be built without blueprints; many products, especially food, could not be adequately packaged, and so on throughout a long list of vital wartime needs. On the other hand, some of the end products of the industry, or at least un-

### PAPER AND PAPERBOARD

Item	Average monthly production (short tons)	Percentage of total		
		Class I*	Class II**	Class III***
Paper and paperboard .....	1,399,900	38.6	33.5	27.9
Paper .....	682,200	28.5	39.2	32.3
Newsprint .....	60,000	3.5	77.4	19.1
Groundwood .....	44,800	27.0	22.4	50.6
Book .....	116,500	21.2	58.2	20.6
Fine .....	71,200	59.2	17.8	23.0
Coarse .....	203,300	28.1	33.5	38.4
Special industrial .....	21,900	66.4	13.4	20.2
Sanitary .....	66,300	30.6	10.5	58.9
Tissue .....	13,500	16.3	27.1	56.6
Absorbent .....	7,600	52.2	17.6	30.2
Building paper .....	77,100	17.7	64.1	18.2
Paperboard .....	717,700	48.8	28.0	23.2
Container .....	332,300	68.2	11.5	20.3
Folding .....	179,600	18.7	59.6	21.7
Set-up .....	69,600	19.6	27.0	53.4
Cardboard .....	3,400	30.1	20.8	49.1
Building board .....	76,600	52.2	41.3	6.5
Other board .....	56,200	49.8	12.8	37.4

### WOOD PULP

Item	Average monthly production (short tons)	Percentage of total		
		Class I*	Class II**	Class III***
Paper and paperboard .....	865,700	34.7	34.6	30.7
Paper .....	568,000	29.0	36.1	34.9
Newsprint .....	62,200	3.5	77.4	19.1
Groundwood .....	45,300	27.2	21.8	51.0
Book .....	79,900	22.3	56.9	20.8
Fine .....	60,300	59.4	17.2	23.4
Coarse .....	202,800	28.0	33.2	38.8
Special industrial .....	19,000	66.1	14.0	19.9
Sanitary .....	65,300	30.7	10.6	58.7
Tissue .....	13,400	16.2	27.1	56.7
Absorbent .....	5,000	54.5	22.4	23.1
Building .....	15,300	16.2	64.4	19.4
Paperboard .....	297,200	58.3	27.8	13.9
Container .....	182,100	75.3	7.0	17.7
Folding .....	42,900	20.5	66.3	13.2
Set-up .....	600	19.6	27.0	53.4
Cardboard .....	1,300	30.1	20.8	49.1
Building board .....	55,500	52.2	41.3	6.5
Other board .....	14,800	35.9	15.4	48.7
Non-paper .....	40,200	35.7	10.3	54.0
Explosives .....	7,700	100.0	—	—
Rayon .....	23,600	21.8	—	78.2
Cellophane .....	5,300	15.7	78.0	6.3
All other .....	3,600	18.2	—	81.8
Export .....	21,900	100.0	—	—

\*Class I—purchased and used directly by governmental agencies and defense plants for war purposes. This includes: sales to governmental agencies, sales sponsored by Foreign Economic Administration, and sales to defense plants as defined in Priorities Regulation No. 1.

\*\*Class II—purchased and used largely to maintain a war economy (by other than those listed in Class I). This includes: communication, transportation, public utility, health and welfare, agricultural products, and construction.

\*\*\*Class III—purchased and used predominantly to maintain a civilian economy (by other than those listed in Classes I and II).

restricted uses of these end products, trespass into the field of non-essentials during war."

Two years ago there was quite a different attitude in public offices.

Several mills were ordered shut down on the Pacific Coast and others were put on restricted production schedules. There were some officials who thought a fifty per cent





**PAUL BUNYAN** branded his logs quickly and efficiently.

He **PINCHED** the log with his powerful fingers. Everyone seeing it knew that it was a Paul Bunyan log!

The **POWELL RIVER** Brand on unbleached sulphite pulp denotes strong, clean, high quality pulp.



## POWELL RIVER UNBLEACHED SULPHITE PULP

POWELL RIVER SALES COMPANY LIMITED • VANCOUVER, B. C.



cut across the board in the industry would be beneficial to the war effort!

According to statistics published by the Department of Commerce and War Production Board in March of this year, defense plants and government agencies were purchasing or using directly 38.6 per cent of total paper and papeboard production in 1944; an additional 33.5 per cent was used largely to maintain a war economy; while the balance of the 27.9 per cent was used predominantly to maintain a civilian economy which is largely on an essential basis. This, at least 78 per cent was vital to the war effort.

fort. Of the total wood pulp consumption, 34.2 per cent is needed to produce paper and board for defense plants, government agencies and for export.

It is important, however, to realize that these percentage figures are going to increase as the war progresses and the military demands increase. They have already considerably increased since the publication of these figures.

In the tables appearing with this article, the figures under Class I already are much larger in many instances and those in Class III are decreasing. (These classifications

are a basis for pulp allocations by the W.P.B.).

Not noted in these tables, but also in Class I (purchased and used directly by war agencies and war plants): 98.7 per cent of map and chart paper; 85 per cent of kraft liner; 82 per cent of V-box jute and B-box chip liner; 74 per cent of tabulating cards tube stock, and more than 61 per cent of bond and writing paper.

In Class I also were 44 per cent of unbleached sulphate pulp, 38 per cent of semi-bleached and bleached sulphate, 36.5 per cent of bleached sulphite, and 29.5 per cent each of unbleached sulphate and soda pulp.

## Postwar Plans and Prospects

(Continued from Page 23)

state sulphite mills are bought.

Otto C. Schoenwerk, of Chicago, who participated in many western developments, is consulting engineer on the Espinola project. It will make pulp from jack pine and alder.

Kimberly-Clark Corp. of Canada has interesting construction plans. Included is a plan to build a \$350,000 creped wadding mill at Kapuskasing, Ont., with homes for employes, the total project being in excess of \$1,000,000.

A plant to make lignin plastics will be built this year by Howard Smith Paper Mills, Ltd., one of the leading Canadian companies manufacturing pulp and white paper.

Brown Company, Berlin, N. H., is going to abandon its Burgess pulp mill and rebuild the Cascade mill as an extensive integrated pulp and paper industry. Pulp will be slushed direct to paper machines. Four larger paper machines will be improved and a new one added. Costs of improvements and construction will be about \$6,500,000.

## More Predictions

● Here are further plans and predictions that will have a tremendous reaction on the postwar pulp and paper industry:

Inland Printer: "Printers plan to acquire \$134,761,966 in new equipment and facilities during the early postwar period, a survey among 528 establishments shows."

H. Wickliffe Rose, research coordinator, American Viscose Corp.: "Wider use of high strength rayons and staple fibers, introduction of new types of rayon and increased production of standard types are

among principal postwar developments anticipated."

Advertising report to American Management Assn.: "\$28,000,000,000 will be spent by families, retailers and distributors within six months after the war."

Hercules Mixer: "Hercules Powder Co. looks forward to a postwar business greater than we enjoyed before the war. Hercules has plans, already drawn up, for a plant construction program far in excess of any prewar year."

E. I. du Pont de Nemours & Co.: "Much of the postwar world's goods are going to be delivered in transparent packages, engineered for protection as well as eye-appeal."

E. B. Berkowitz, president, Tension Envelope Co.: "The paper products industry will expand in the packaging of foods, particularly since dehydration has been developed . . . powdered eggs are expected to be retailed by the omelette or the dozen after the war. Soups will come powdered and savored in paper envelopes. Larger envelopes will be used for vegetables and fruit."

Frank Smith, National Paper & Type Co.: "There is an immediate need to draft postwar plans by paper exporters."

U. S. Department of Commerce: "Largest immediate use of plastics will come from construction, automobile, airplane and radio industries. . . ."

Journal of Commerce: "Eastman Kodak Co. will expand its business in cellulose acetate plastics and acetate rayon yarn. There also will be increased participation by Eastman in manufacture and marketing of transparent packaging material."

Fred Brundage, WPB Pacific Coast log and lumber administrator: "Pulp and paper mills can be main-

tained by the trees left in this area but a large number of sawmills will shut down."

Maj. Charles Cowan, secretary, Washington State Forestry Conference: "Pulp and paper mills and other industries using refining processes upon wood will gradually replace sawmills."

Col. W. B. Greeley, secretary-manager, West Coast Lumbermen's Assn.: "We can expect a widening range of uses for wood—more wood pulp and greater variety, rayon, cellophane, plastics, wood tars, wood acids and alcohol."

## Another Top Exec's Views

● In the opinion of one Pacific Coast manufacturer of paperboard and paperboard products, the usual progressive change for the better will develop and continue after the war. Since the Pacific Coast and adjoining states are greatly benefited by recent development of hydroelectric power, flood control and waters for irrigation purposes, he believes the future holds great promise for continued industrial and agricultural development. This indicates a steady upward trend in further needs of paper and paperboard products.

To this observer it appears that pulp, paper, and paperboard mills of the future will be considerably more efficient. Better and stronger metals will be available, which will be the means of very considerably, if not entirely, getting away from corrosion and expensive maintenance. Stronger and improved metals will permit more efficient preparation of raw materials. Many improvements in mechanical designs will permit the production of improved qualities, and at the same time, still greater speeds.



# FUTURE EXPORT MARKETS: World Demand Expected to Exceed Capacity for Some Years

Postwar markets likely to be large for U. S. pulp, paper, paperboard and paper products until Europe is rehabilitated. Table shows comparative activity in export fields by sixteen pulp and paper producing nations.

FOR many years the United States has ranked as the world's largest manufacturer of pulp and paper but its export trade has been comparatively insignificant as related to production, representing only about 2 to 3 per cent of tonnage output. Compared with other important pulp and paper manufacturing countries such as Sweden, Finland, or Canada, these exports have been proportionately very small. In general, the United States industry, in the past, has evidenced little interest in export trade. In spite of this our export business in pulp and paper is of considerable economic importance and certainly can not be ignored. In the 5-year period 1935-1939, United States sales abroad of paper base stocks and paper and manufactures averaged approximately \$40,000,000 a year.

## Prewar World Trade

● Prior to the war, there existed a surplus of manufacturing capacity in the world's pulp and paper industries in relation to world demand for these products. This situation, coupled with the fact that pulp and paper is produced in many countries, led to strong international competition and a maze of complicated marketing practices.

For many years, Sweden and Finland led the world as producers of pulp for export, followed by Canada, Norway, the United States, Austria, Germany, Czechoslovakia, and a number of other countries. On the other hand, Canada led the world as the largest tonnage exporter of paper, this being primarily newsprint for the United States. Following, in order of importance in 1938, were Finland, Sweden, Germany, Newfoundland (also newsprint), Norway, the Netherlands, the United Kingdom, Japan, and the United States.

The largest import markets for pulp in the prewar period were the United States, Great Britain, France, Italy, Germany, Belgium, and the Netherlands. The largest importers of paper were the United States (principally newsprint from Canada), the United Kingdom, Australia, Argentina, China, India, and

France. Although these were the most significant markets, it must be kept in mind that about 40 countries in all imported pulp, and practically every country of the world imported paper, notwithstanding that paper of one grade or another was produced to some extent in nearly every country.

During the period 1929-1938, world exports of wood pulp from the principal exporting countries averaged about 5,432,000 short tons per year of which the United States accounted for 133,000 tons, while world exports of paper and manufactures from the principal producing countries averaged around 5,823,000 tons a year with United States exports averaging 260,000 tons.

## United States Position

● The value of woodpulp exports from the United States rose from \$2,729,300 in 1929 to \$6,493,140 in 1939. This trend was marked by increases in shipments of the special chemical grades of bleached sulphite pulp and unbleached sulphate (kraft) pulp. Exports of special chemical grades of bleached sulphite pulp rose from 48,000 tons in 1939 to 115,000 tons in 1940. Exports of unbleached sulphate pulp jumped from 14,816 tons in 1939 to nearly 159,000 tons in 1940. The principal foreign markets for United States wood pulp in 1939 were Canada, the United Kingdom, Japan, France, Belgium, Brazil, Cuba, Mexico, Australia, British India, Argentina and Italy, in the order of their importance.

Over the 1929-1939 period the value of exports of paper and manufactures fell from \$37,086,000 to \$30,492,000, but total exported tonnage increased more than 7 per cent. The principal markets for paper in 1939 were Canada, the United Kingdom, the Philippine Islands, Cuba, Mexico, Argentina, the Union of South Africa, Venezuela, the Netherlands Indies, Colombia, China, Australia, Brazil, and British India. The numerous other countries buying United States paper and manufactures each took less than \$500,000 worth during 1939.

During this 1929-1939 period, tonnage exports of printing papers declined 23% (the drop being mainly in newsprint); wrapping papers increased 36%; writing paper increased 35%; other papers increased 22%; building papers and boards increased 25%; and paperboards increased 44% (entirely on account of container and boxboards). Total exports of converted paper products remained practically unchanged, the losses in envelopes, boxes and cartons, and papeteries being approximately balanced by gains in sanitary tissue products and paper bags.

## Postwar Prospects

● What are the prospects for this trade in pulp and paper after the war? In "Foreign Trade After the War" (published by the U. S. Bureau of Foreign and Domestic Commerce) a purely hypothetical statistical projection indicates a possible export in 1948 of \$27,300,000 of paper base stocks, a gain of 133 per cent over 1938 the last normal prewar year; and of \$59,500,000 of paper and manufactures in 1948, an increase of 130 per cent over 1938. This projection assumes 1948 to be the third postwar year, following a period of world rehabilitation and adjustment.

On the basis of total exports of \$7,000,000,000, a hypothetical distribution of exports by commodity groups was made in accordance with their past relationship to the total. In the case of paper and paper products the correlation during the 11-year base period 1929-1939 was reasonably close. This may be accounted for by the fact that exports of these products are made to many countries throughout the world and, since paper consumption in most countries varies in proportion to general economic conditions, it is reasonable to assume that paper and paper-products exports followed, in general, the trend of total exports of all commodities.

On the other hand, there was little close relationship between exports of paper base stocks (of which wood pulp is the principal component) and total exports of all commodities. During the 10 years



prior to 1938, Japan took annually from 50 to 85 per cent of our total exports of wood pulp (primarily rayon grades of bleached sulphite) so that this single country exerted a major influence upon total exports of paper base stocks. Since total exports of commodities to a single country, such as Japan, do not necessarily follow the pattern of total exports to the world, the projection into 1948 for paper base stocks seems questionable.

The hypothetical projections for exports of pulp and paper are, however, not unreasonable. Exports of paper and manufactures amounted to \$86,983,000 in 1919 and to \$89,072,000 in 1920, postwar years of World War I. By 1940 the export demand was already influenced by business that before the present War went to other supplying countries. Our exports of paper and manufactures in 1940 were valued at \$65,128,000, well in excess of the projected \$59,500,000 for 1948. United States exports of wood pulp in 1940 amounted to \$29,737,000 as against \$27,300,000 projected for 1938.

#### Determining Factors

● The extent of the United States export trade in pulp and paper in the postwar period will depend primarily upon (1) domestic demand and the capacity to supply it plus an additional supply for export; (2) the extent of increase in world demand due to generally increased economic activity, industrialization, and social advances in terms of education and literacy, and (3) foreign production and supplies in relation to world demand upon which the degree of price competition and profitable trade will depend.

What will be the position of the pulp and paper industry during the immediate postwar period when industry as a whole will be reconverting its plants and resuming its normal peacetime activities? Will there be a sharp drop in orders and production? The pulp and paper industry itself has no mechanical reconversion problem because its plant equipment could not be converted to the manufacture of other goods.

The anticipated cessation of hostilities in Europe some time before the end of the war in the Far East will tend to ease the impact of any sudden cancellation of all war requirements. Another factor which will tend to offset the effect of the cancellation of war orders will be the demand caused by replenishing of depleted stocks of practically all types of paper. There may be a drop in direct domestic consumer

*This article on U. S. export possibilities and the shares which other nations had in world markets was prepared by the Pulp and Paper Unit, U. S. Bureau of Foreign and Domestic Commerce, Department of Commerce.*

needs for some types of paper. For example, during the period of general reconversion the over-all demand for packaging materials may be reduced. Likewise the timing of reconversion may have great influence on the variations in the demand for different grades of paper.

But it is likely that the unsatisfied over-all demand will be so great that such decreases will not bring total demand below the production capacity of the industry in the immediate postwar period. The factor which will have the greatest influence at that time on production will be the supply of pulpwood. How long it will take to bring pulpwood cutting up to prewar levels is problematical. Even with an increase in wood cutting, it normally takes about a year before the tree is converted into paper.

All in all, the capacity of the pulp and paper industry will be taxed (1) to meet the pent-up demands for all types of paper made scarce during wartime, (2) to replenish depleted inventories, and (3) to meet the indirect export demand.

As reconversion progresses, the domestic requirements for paper will increase in like proportion. The demand for such goods, unsatisfied during the war, plus the pent-up purchasing power throughout the country, will, in all probability, create an unprecedented volume of civilian orders and, as these goods are manufactured, a corresponding demand for paper. War requirements have developed many new uses for paper and many new products such as weatherproof fiber shipping containers, and undoubtedly postwar developments will create considerably more new uses. Moreover, Europe, the Far East, and Latin America will, while European mills are being rehabilitated, look to the United States for fulfillment of a large part of current demand as well as for the replacement of stocks of paper unobtainable during war years. In addition, there will be the indirect export demand for packaging the food and other items urgently needed by the war-torn countries of the world.

At present all indications support the assumption that there will be no surplus of pulpwood, pulp, or paper in the United States for at least two or three years after the war in Europe ends. It may take as long as five years before produc-

tion returns to normal in all European countries. Unless current trends are radically changed, inventories of wood, pulp, and paper will be at extremely low levels when peace comes, and about 2 years of normal production will be needed to replace them.

Thus, while domestic consumer demand may increase somewhat during the immediate postwar year or two, the replacement of inventories plus the direct and indirect export demand is likely to exceed the domestic capacity to supply it.

There is no reason to believe that with the cessation of hostilities there will be any sudden or important geographical change in export markets for United States pulp and paper as compared with 1938, except that Japan will probably not be in a position to resume buying the special grades of bleached sulphite pulp. There is, however, the distinct probability that Australia, New Zealand, China, British India, and other Far Eastern countries eventually will become increasingly important buyers of United States paper and paper products.

As a result of the war, United States products of many kinds, including paper and paper products, are becoming more favorably and increasingly well known throughout the world, with the American soldier playing the part of super-salesman. American manufacturers are gaining valuable knowledge regarding the varying requirements for suitable export packaging for different markets which is a potent factor in building goodwill.

#### Domestic Capacity

● Prior to the war, there was considerable excess (in relation to demand) of domestic manufacturing capacity in the pulp and paper industry. Few mills were able to maintain production at full capacity. This situation was particularly true with reference to wood pulp. Illustrative of this country's capacity to produce paper, the output in 1941, the peak of the current war period, was more than 60 per cent over that for 1938. However, immediately after the war, a considerable part, if not all, of the old marginal capacity now pressed into service will probably go out of production as new, more efficient equipment and mills are built.

Because of shortage of maintenance and repair materials, inexper-



other  
Paper  
ment

Euro-  
current  
inven-  
er will  
when  
ears of  
ded to

consumer  
at dur-  
ear or  
ntories  
export  
he do-

ve that  
s there  
nt geo-  
markets  
paper  
pt that  
a posi-  
special  
pulp.  
t prob-  
ealand,  
er Far  
will be  
buyers  
paper

United  
nds, in-  
oducts,  
ly and  
ughtout  
soldier  
lesman.  
e gain-  
garding  
or suit-  
differ-  
factor

as con-  
to de-  
cturing  
per in-  
o main-  
y. This  
e with  
strative  
o pro-  
41, the  
od, was  
hat for  
y after  
if not  
capacity  
l prob-  
as new,  
d mills

mainte-  
exper-

ience labor, and pressure for maximum production during the war, pulp and paper machinery will be in need of extensive overhauling, replacements, and modernization. Several new mills are planned. Thus, with this program of expansion, when the peak of the early postwar demands has passed, the industry may find that again its capacity is greater than domestic demand. Such a possibility should prove to be a potent factor in influencing industry to become more "export-minded" than in the past.

### Increased Industrialization and Social Advances

● Experience has shown that the increase in consumption of paper in the United States over a period of years is closely related to the rising index of industrial production. It can safely be assumed that such a pattern is followed in other countries and that their consumption of pulp and paper will depend in large measure on an increase in industrialization. Greater education resulting in a wider culture will also increase the consumption of paper.

Though it is known that some pulp and paper production capacity in certain countries, particularly in Europe, will have been damaged, the postwar outlook is for a substantially larger world manufacturing capacity after rehabilitation than existed before the war. This capacity may in time exceed consumption even though per capita use is increased and new markets developed, being 26 per cent of total production in these countries estimated at 28,090,000 tons. United States exports of paper, paperboard, and converted products in 1937 amounted to 224,000 tons, representing only 3 per cent of world exports.

An accompanying table shows production and exports of pulp, paper, and paperboard from the principal producing countries in 1937.

### Production In Relation to Demand

● In 1937 world exports of wood pulp from the 16 principal exporting countries amounted to some 7,231,000 tons. This was about 28 per cent of total pulp production of around 25,662,000 tons in these same countries. The United States' share in this export trade was 323,000 tons or only 4.5 per cent.

In the same year, world exports of paper, paperboard, and manufactures, as measured by exports from the 16 principal exporting countries, was around 7,397,000 tons,

## PRODUCTION AND EXPORTS OF WOOD PULP, PAPER AND PAPERBOARD IN SELECTED COUNTRIES IN 1937

(000 short tons)

	Wood Pulp			Paper and Board		
	Pro- duction	Exports	% of Pro- duction	Pro- duction	Exports	% of Pro- duction
United States.....	6,573	323	4.9	12,837	224	1.7
Austria .....	456	205	44.9	346	17	4.9
Canada .....	5,141	871	16.9	4,345	3,568	82.1
Czechoslovakia .....	397	150	37.8	349	84	24.0
Finland .....	2,515	1,610	64.0	845	703	83.1
France .....	393	4	1.0	n.a.	73	n.a.
Germany .....	2,737	183	6.7	3,933	551	14.0
Great Britain.....	222	8	3.6	<sup>1</sup> 4,738	220	4.6
Italy .....	208	—	—	<sup>2</sup> 563	19	n.a.
Japan .....	993	3	0.3	<sup>3</sup> 1,066	100	9.3
Netherlands .....	133	2	1.5	<sup>4</sup> 269	376	n.a.
Newfoundland .....	353	3	0.8	<sup>5</sup> 350	334	n.a.
Norway .....	1,207	1,052	97.1	467	380	78.0
Poland .....	191	3	1.5	<sup>6</sup> 187	12	n.a.
Sweden .....	3,219	2,814	87.4	1,079	732	67.8
U. S. S. R.....	924	—	—	1,008	—	0.4
Total .....	25,662	7,231	28.1	n.a.	7,397	n.a.

n.a.—Not available.

—None.

<sup>1</sup>1935—Latest available official figures.

<sup>2</sup>Does not include production of mills constructed since 1933.

<sup>3</sup>Unofficial statistics.

<sup>4</sup>Does not include rag content papers nor strawboard.

<sup>5</sup>Newsprint only.

<sup>6</sup>January-October.

Source: Official Foreign Trade Statistics of the various countries.

Damage to some of Europe's forests, particularly in Central Europe, will probably have been extensive both from direct war damage and overcutting. Since these forests are extremely valuable national resources, it is possible that government restrictions may be placed on pulpwood cutting and have greater effect on pulp production than will damage to the pulp mills. Another factor that, in all probability, will have great bearing on European pulp production will be the diversion from pulp mills of huge quantities of timber for manufacture into lumber for the rebuilding of the devastated regions.

With the world wide demand for all types of materials, the length of time it will require to completely rehabilitate the entire European pulp and paper industry is problematical. Even if the mills could be quickly put back into operation, the European demand could absorb the entire production for some time.

The defeat of Germany and the ending of hostilities in Europe will have little immediate effect on the pulp and paper industry in the United States. A limited supply of Swedish pulp may become available to augment the domestic supply. The European needs for paper and board, both direct and indirect, plus domestic requirements increased by the easing of war restrictions on use, will create a demand probably ex-

ceeding any previously experienced. For an indefinite period immediately after the war the United States and Canada will continue to be the major sources of supply, but increasing quantities of pulp and paper will become available from Sweden.

All indications lead to the assumption that, for several years after the war, world demand for pulp, paper and paperboard will exceed world production capacity; with the rehabilitation of the world's industry, supply will equal demand for an indefinite period; but eventually further increased manufacturing capacity will probably cause potential supplies to exceed world demand.

The immediate postwar demand for United States pulp, paper paperboard and paper products will undoubtedly continue unabated until the European industry is rehabilitated. This presents an unparalleled opportunity to United States manufacturers and exporters to develop and retain foreign markets. However, American paper manufacturers have, in the past, shown little interest in exporting their products at the low-priced competitive levels of the foreign exporters, and it remains to be seen whether competitive prices, tariffs, and the many other factors affecting the profitability of export markets will allow this interest to grow.





PORT ALICE, B. C.

## BLEACHED SULPHITE PULP

Manufactured to Customers' Specifications

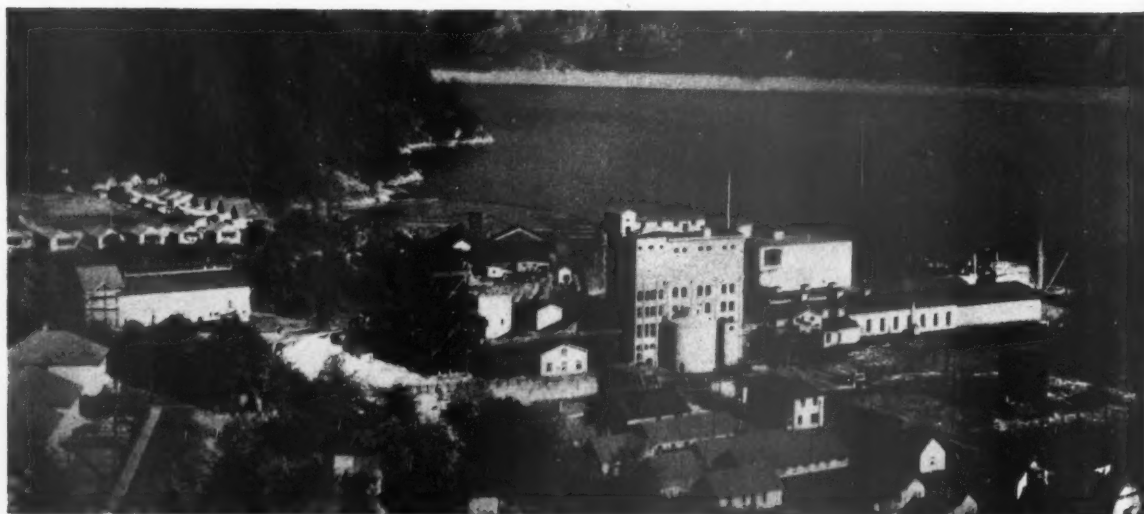
*for*

### RAYON . . . PAPER . . . PLASTICS

While unusual distribution of our products is now a necessity, we look forward to the day when we shall again fill the needs of old customers.

## BRITISH COLUMBIA PULP & PAPER COMPANY LIMITED

Bank of Nova Scotia Building -- Vancouver, B. C.



WOODFIBRE, B. C.



# BRITISH COLUMBIA INDUSTRY: Operators Estimate Investment at \$70,500,000

● British Columbia's pulp and paper industry, according to the operating companies' own estimates, represents today a capital investment of more than \$70,500,000.

Annual production of pulp is valued at \$11,301,479 and of newsprint \$15,986,000; of other grades of paper, \$6,432,020.

The year's payroll of the industry in Canada's west coast province is reckoned at \$9,857,421, and the industry's contribution in provincial and municipal taxes amounts to more than \$2,300,000 a year. More than 5,700 are employed, and the annual payroll is close to \$10,000,000.

Annual expenditures of the industry for chemicals runs to approximately \$1,142,000; for transportation, \$4,841,258; for fuel, nearly \$2,000,000; for miscellaneous supplies, nearly \$6,000,000.

In value of production the manufacture of pulp and paper ranks second only to lumber in the forest industries and last year represented nearly one quarter of the forest revenues from all sources in the province, and approximately the same as the total revenue from fisheries in British Columbia before the war.

The figures on capital investment, value of production, number of employees, annual payroll, etc., for the larger individual companies are given on this page.

## Water Is Important Raw Material

Water is an important raw material in the manufacture of plastics when paper is used as an impregnating medium. The largest raw material used in paper manufacturing is not wood nor rags—but water. Approximately 400 pounds of water are needed to make one pound of paper. Hence, any objectionable mineral or metallic salt in water exposes the fibers to large quantities of these materials.

Following is the analysis of the water used in the manufacturing of pulp and paper, at Munising Paper Company, Munising, Mich., a water so pure that a penny can be clearly seen at a depth of 40 feet, according to that company:

Parts per Million	
Sulphate (SO <sub>4</sub> )	1.0
Chloride (Cl)	4.0
Nitrate (NO <sub>3</sub> )	n.d.
Iron (Fe)	*Tr.
Manganese (Mn)	*Tr.
Sodium (Na)	4.0
Mineral Acidity (As CaCO <sub>3</sub> )	0.0
pH	7.5

\*Trace less than 0.1.

Munising is a manufacturer of impregnating papers for plastics manufactures.

### British Columbia Pulp & Paper Co., Ltd.

Capital Investment	\$11,421,804
Annual Production:	
Dissolving Pulp and Bleached Sulphite	\$ 7,600,164
Number of Employees	1,299
Annual Payroll	\$ 2,282,080
Taxes—Provincial and Municipal	\$ 207,219
Annual Expenditures:	
Chemicals	\$ 724,668
Transportation	\$ 1,260,000
Fuel	\$ 897,947
Miscellaneous Supplies	\$ 199,259

### Pacific Mills, Ltd.

Capital Investment	\$21,388,962
Annual Production:	
Pulp	\$ 849,815
Paper—Newsprint	\$ 2,575,516
Paper—Other Grades	\$ 2,594,036
Number of Employees	1,400
Annual Payroll	\$ 2,613,718
Taxes—Provincial and Municipal	\$ 264,099
Annual Expenditures:	
Chemicals	\$ 123,580
Transportation	\$ 1,831,000
Fuel	\$ 548,717
Miscellaneous Supplies	\$ 2,080,268

### Powell River Company, Limited

Capital Investment	\$34,972,649
Annual Production:	
Pulp	\$ 2,821,500
Paper—Newsprint	\$13,411,200
Paper—Other Grades	\$ 1,210,000
Number of Employees	2,282
Annual Payroll	\$ 3,767,356
Taxes—Provincial and Municipal	\$ 235,133
Annual Expenditures:	
Chemicals	\$ 250,100
Transportation	\$ 1,538,654
Fuel	\$ 477,168
Miscellaneous Supplies	\$ 2,805,243

### The Sidney Roofing & Paper Co., Ltd.

Capital Investment	\$ 1,180,000
Annual Production:	
Pulp	\$ 30,000
Paper	\$ 1,040,000
Number of employees	212
Annual Payroll	\$ 305,000
Taxes—Provincial and Municipal	\$ 5,000
Annual Expenditures:	
Chemicals	\$ 32,000
Transportation	\$ 53,000
Fuel	\$ 34,000
Miscellaneous Supplies	\$ 565,000

### Westminster Paper Company, Limited

Capital Investment	\$ 1,623,583
Annual Production	\$ 1,587,984
Number of Employees	252
Annual Payroll	\$ 389,267
Rent and Taxes	\$ 1,882
Annual Expenditures:	
Chemicals	\$ 12,250
Transportation	\$ 158,604
Fuel	\$ 30,214
Miscellaneous Supplies	\$ 251,998





## METHYL VIOLET 4BPX CONC.

No! We're not playing a guessing game. There wouldn't be any point to it. Calco's Methyl Violet 4BPX Conc. is too well known to Paper men as the industry standard!

And why? Because it's the outstanding violet for money value.

Because it's the strongest tinctorially at lowest cost. Because it possesses good solubility and dyeing properties. Because it can be used as a base color or shading color for practically all blue, violet or gray papers. Particularly when economy is of paramount importance to the job.

Ask your H. & M. representative to give you the specifications on Methyl Violet 4BPX Conc. as a beater color or calender stain.



**HELLER & MERZ DEPARTMENT**

**CALCO CHEMICAL DIVISION • AMERICAN CYANAMID COMPANY**

**BOUND BROOK, N. J.**

SALES AGENT

PACIFIC COAST SUPPLY COMPANY, PORTLAND, OREGON

NEW YORK • CHICAGO • BOSTON • PHILADELPHIA • PROVIDENCE • CHARLOTTE



## 1943 Diary of the Pulp & Paper Industry

### January

U. S. War Production Board permits resumption of shipments of Pacific Coast paper pulps to eastern and midwestern mills after two months shutdown.

WPB's General Conservation Order M-241 amended to permit temporary increase in production of mills using waste paper. Manufacturers directed to reserve two per cent of quarterly quotas each month. Elaborate inventory restrictions invoked.

### February

George A. Mead is reelected president of the American Paper & Pulp Association at "Paper Week" in New York.

Ralph A. Hayward, president of Kalamazoo Vegetable Parchment Co., is elected president of TAPPI. Harry Fletcher awarded TAPPI medal.

Lawson P. Turcotte, Puget Sound Pulp & Timber Co., elected director-at-large of the U. S. Pulp Producers Assn., succeeding the late Ossian Anderson.

### March

U. S. Office of Price Administration grants \$4 a ton increase in the price of newsprint. This is expected to add \$12,000,000 to revenue of Canadian newsprint industry in 1943.

### April

Rayonier Incorporated's pulp mill at Tacoma, Wash. (140 tons daily), closed by WPB order, is abandoned and sold for dismantling to Bagley & Sewall Co.

Under Wisconsin industry's auspices, construction begins on pilot plant at Interlake Co. mill, Appleton, Wis., to test disposal of pulp mill effluent by bacterial oxidation.

### May

PACIFIC PULP & PAPER INDUSTRY publishes description of new whole log hydraulic barker and whole log chipper installed at Everett, Wash., pulp mill of Weyerhaeuser Timber Co., increasing pulp yield from wood 18 to 20 per cent. War Production Committee of Pulpwood Consuming Industries formed in New York with Frank Block as director to campaign for more pulpwood.

### June

Pulpwood receipts at U. S. mills during first six months of year is 24 per cent. Wartime service meeting of American Pulp & Paper Mill Supts. Assn. in New York elects Stanford G. Blankinship president to succeed Grover Keeth.

Alcohol reduction plant, using pulp mill effluent of Ontario Paper Co., Thorold, Ont., began operations. To produce 800,000 gallons per year for explosives, rubber and other war purposes.

Canadian newsprint coordinator orders Canadian newsprint manufacturers to reduce exports 12 per cent. Donald Nelson, U. S. War Production Board chairman, said Canada would ship 210,000 tons of newsprint each month into the United States.

Comox Logging & Railway Co. begins

recovery of small trees on logged-over lands near Ladysmith, B. C., in developing new source of wood for Powell River Paper Co.

### July

Additional five per cent cut in newsprint use in United States ordered by War Production Board. Most newspapers had not entirely complied with a previous ten per cent order and it was estimated this new order actually brings reductions to only about 10% under 1942 usage. Another \$4 increase in newsprint price is approved, raising it to \$58 a ton. Pulpwood receipts at U. S. mills for first six months are 24 per cent below similar 1942 period.



**HIGH WET STRENGTH PAPERBOARD CONTAINERS** have been developed which have been dumped by the thousands and floated to beach-heads in the war theaters. Cargo ships were able to make a fast getaway, often escaping enemy attack. Development of these containers is best known of the wartime achievements of the industry.

### August

American P. & P. Assn. urges draft deferment for woods workers, reconsideration of OPA prices.

Rayonier Incorporated's sulphite pulp mill at Shelton, Wash., daily capacity, 200 tons rayon grades, shut down for duration by lack of logs.

Newspapers of U. S. launch Victory Pulpwood Campaign with 13,000,000 cord-goal set for year.

U. S. Office of Price Administration increases pulpwood prices in Minnesota, Michigan and Wisconsin \$1 to \$2 per cord (560 feet).

### September

WPB reorganization in Washington brings in Harold Boeschenstein as director of the new Forest Products Bureau, with authority over pulp, paper, lumber, containers and publishing divisions. Arthur Wakeman becomes consultant and A. B. Hansen heads pulp production. Paper and paperboard division separated. Anacortes, Wash., pulp mill, Scott Paper Co. subsidiary, reopens after ten months' shutdown caused by WPB order arising out of log shortage. Is producing 70 tons daily, sulphite pulp.

Congressional newsprint inquiry committee headed by Rep. Boren of Oklahoma completes coast to coast tour of mills in Canada and states of Washington and Oregon. Urges Canada make wood-cutting an essential industry to ease manpower losses.

Rear Adm. C. H. Woodward, U. S. N., chief of Navy Incentive Division, said more than one-half of the smokeless powder being made in the U. S. is manufactured from wood pulp instead of cotton linters.

TAPPI-sponsored meeting in Chicago of 150 army, navy and government representatives and 700 TAPPI members discuss packaging and other wartime paper requirements.

### October

Conservation Order M-241 amended by WPB permitting it to direct up to ten per cent of paper mills' production each month.

Rex Hovey heads new Paper Division and G. C. Otto becomes chief of Paperboard Division, both under Harold Boeschenstein, director of the new Forest Products Bureau of the U. S. War Production Board.

J. L. Ober became acting president of the Coos Bay Pulp Corp., and acting vice president of Scott Paper Co., owing to illness of William S. Campbell.

Niles M. Anderson, former manager and superintendent of Puget Sound pulp mills, becomes vice president and manager of newly formed Marathon Paper Mills of Canada, Ltd., Toronto, and will direct plans for construction of new Ontario kraft mill.



## November

Canadian order controlling all pulp production quantities, qualities, deliveries and shipments goes into effect. Permit control system set up to reduce commercial uses of paper in Canada by 25 per cent.

David Graham, WPB chief of Pulp Allocation, and his advisor, L. K. Larson, explain operations of new complete end-use control of all U. S. wood pulp supplies to 26 mill representatives. The new system, allocating pulp and controlling use on basis of essentiality of final product, to go into effect Jan. 1.

National Paperboard Association, meeting in New York, elects W. Irving Osborne, president, and hears forecast that year's production will be seven per cent over 1942.

Agner B. Hansen resigns as director of pulpmill production for the WPB. James M. Madden succeeds him and becomes deputy director of paper division under Rex Hovey.

## December

Roy K. Ferguson, president of St. Regis Paper Company, announces acquisition of one of the last great available stands of timber in western United States, totaling 90,000,000 acres. This will enable reopening of Tacoma, Wash., pulp mill of that company in 1944 with a "perpetual" log supply.

Swedish Trade Delegation, including representative of pulp producers, arrives in United States and sets up headquarters in New York. Will take pulp orders, hoping to deliver in 1944.

D. Clark Everest, of Marathon Paper Mills, is selected to be given TAPPI gold medal at 1944 winter meeting.

WPB orders formulated to reduce all paper usage in the United States in 1944 by newspapers, magazines, books, and commercial printers to about 25 per cent below 1942 consumption.

OTHER EVENTS OF 1943  
ON THE PACIFIC COAST

## January

Senate Bill No. 74, proposing \$5 per ton tax on pulp, the funds to be loaned back to mills for by-products plants and also to be used for fisheries, is proposed in the Washington State Legislature and referred to the Committee on Fisheries

of the State Senate, where it later died. Ed Tidland becomes manager of Pacific Coast Supply Company, representatives of several mill equipment and supply companies, succeeding John M. Fulton, ordered to duty in the Navy.

Leo C. Kelley, former Woodfibre superintendent, becomes general sulphite superintendent of both Port Alice and Woodfibre mills.

Walter Jacoby appointed assistant technical supervisor at Camas, succeeding Francis W. Flynn, on leave in Navy.

R. W. Simeral, vice president and manager of Fir-Tex Insulating Board Co., begins third term as Mayor of St. Helens, Ore.

Willamette River flood demolishes wooden dam at Hawley Pulp & Paper Co., Oregon City. Flood causes temporary shutdowns of this company, the Crown Zellerbach mill across the river and the Oregon Pulp & Paper Co. mill up the river at Salem.

O. T. Defieux, of Crown Zellerbach Corp., Camas, Wash., discusses conservation of materials and Robert H. Williams of the War Manpower Commission talks on job instructor training at TAPPI, Pacific Section, meeting in Longview, Wash., attended by 85.

George H. McGregor, former superintendent, Longview, Wash., mill, Pulp Division, Weyerhaeuser Timber Co., becomes senior chemical engineer, paper division, U. S. Forest Products Laboratory, Madison, Wis.

Tacoma Paper & Stationery Co., Tacoma, Wash., becomes a new division of Blake, Moffitt & Towne, with Frank E. Jeffries continuing as president.

## February

Robert E. Bundy left for Philadelphia to be vice president and manager of Federal Container Co. C. Vernon Basom succeeds him as resident manager of the Fibreboard Products Inc., mill at Port Angeles, Wash. A. Nelson Hartnagle became assistant resident manager as well as chief chemist.

Raymond P. Hill, president of Pulp Bleaching Company, Wausau, Wis., joins Webster-Brinkley Company, Seattle, as technical consultant. Williams Rothchild, president of Atlas Paper Co., died in San Francisco.

S. I. Wasell, chief engineer, Fibreboard Products Inc., at Vernon, Calif., died.

## March

Colonel Walter DeLong, Washington State Director of Selective Service, in an article written for PACIFIC PULP & PAPER INDUSTRY, declared the pulp and paper industry is "essential to the war effort" and urged employees of non-essential civilian industries to get into the pulp and paper industry.

Walter DeLong, (no relation to person mentioned above), vice president of St. Regis Paper Co.'s kraft division in Tacoma, Wash., was elected a director of the parent company.

Ralph Kumler, American Cyanamid & Chemical Corp., discussed melamine resins, Robert A. Baum, Fernstrom Paper Mills, talked on alum floc in pulp, and Claude W. Callaghan, The Flox Co., discussed powerhouse efficiency at Pacific Section, TAPPI, in Portland, Ore. Attended by 101 persons.

R. M. Buckley, of Tacoma, resigned from the War Production Board, to become eastern representative of Soundview Pulp Co.

Paul Paganini succeeds Harry Bean as manager, Seaboard Paper Co., San Francisco.

Crown Willamette Paper School, Camas, Wash., graduates seven from fourth year course and 46 from other courses.

Harold D. Cavin, resident engineer, Puget Sound Pulp & Timber Co., Bellingham, Wash., joined the Seabees and Vic Haner became acting plant engineer. Niles Anderson, former mill manager, St. Regis Paper Co., Tacoma, Wash., left for Ontonagon, Mich., to become an executive of the Ontonagon Fibre Corp., subsidiary of Marathon Paper Mills.

## April

Powell River Company shut down, out of logs. Continued later with three of seven machines idle due to log shortage. Jurisdictional labor dispute closes Hoquiam, Wash., division of Rayonier Incorporated, from Apr. 3 to 13.

First publication in PACIFIC PULP & PAPER INDUSTRY of paper by Charles S. Maxwell, American Cyanamid & Chemical Corp., explaining new development of high wet strength in papers by use of melamine resins in the beaters before sheet is formed.

J. Dwight Tudor, Fibreboard Products Inc., Los Angeles, elected president\* of Paper Mill Men's Club of Southern California.

Oscar Hallburn appointed resident manager, Southgate, Calif., division, Fibreboard Products Inc.

## May

Pacific Coast Association of Pulp & Paper Manufacturers completed first year of war work machine program with 781,237 man hours spent on work valued at \$4,000,000, mostly for war and cargo ships.

William A. Kinney, The Flintkote Co., Los Angeles, elected chairman of Papermakers & Associates of Southern California.

Ralph O. Hunt named assistant to Albert Bankus, vice president in charge of manufacturing, Crown Zellerbach Corp., San Francisco.

Gordon Morseth, former supervisor of cooking and acid making, Puget Sound Pulp & Timber Co., became sulphite superintendent, Detroit Sulphite Pulp & Paper Co., Detroit, Mich.

## NEWS OF

*The Pacific Pulp & Paper Industry--*  
15 Years Ago

The paper mill in the second unit of the new Crown Zellerbach mill at Port Townsend went into production May 15, giving the completed mill a capacity of 200 tons daily. The first digester of this new mill was blown October 6, 1928. The mill has the largest kraft machine in the world, a 251-inch fourdrinier.

F. W. Leadbetter, president of several Pacific Coast mills, and his associates, acquired control on May 21 of the 50-ton daily capacity Tumwater Paper Mills Company plant near Olympia, Wash. Ted Osmund, former president of the Tumwater company, became secretary and assistant general manager of the Leadbetter mills.

## 10 Years Ago

Ralph B. Hansen, technical director, Pulp Division, Weyerhaeuser Timber Company, died in a Seattle hospital May 28 as the result of injuries received in a fall off a cliff on an outing. He was one of the most popular men in the western industry.

Dr. Elbert C. Lathrop, formerly research director for The Celotex Co., became technical director at the Camas, Wash., mill of Crown Zellerbach Corporation.



Charles G. Frampton, Fernstrom Paper Mills, Pomona, Calif., elected chairman, Pacific Division, Mill Superintendents Association.

Clarence A. Enghouse, West Linn, Ore., Division of Crown Zellerbach Corp., elected chairman, Pacific Section, TAPPI. W. A. Kelly, of Portland, awarded life membership in Superintendents Association.

Robert A. Baum, Fernstrom Paper Mills, granted TAPPI's Shibley award.

Total of 114 attend Portland, Ore., joint Superintendents-TAPPI meeting May 22. Taylor Alexander made managing director in Portland home office of Oregon P. & P.-Columbia River Paper Mills. J. K. Hayes becomes resident manager of Los Angeles subsidiary.

New sulphite plant at Powell River Co., Powell River, B. C., is completed.

Col. Elmer V. Wooton, Oregon State Director of Selective Service, in a letter to PACIFIC PULP & PAPER INDUSTRY, says pulp and paper mills of Oregon are considered essential industries.

### June

Pacific Coast Paper Mills of Washington, Inc., Bellingham, Wash., cleared by Federal Trade Commission in hearing on complaint against use of "M-D" trademark on tissue and napkins. Argument that it implied medical or dental approval of the product was dismissed.

WPB announces pulpwood receipts by Pacific Northwest mills for first four months of 1943 declined 30% under corresponding 1942 period.

David B. Davies, of Shelton, Wash., production manager of Rayonier Incorporated's Washington state mills and pioneer of the western industry, dies in Seattle.

Life memberships in American Pulp & Paper Mill Superintendents Association granted to G. J. Armbruster, general superintendent, Soundview Pulp Co., and to Thomas H. Beaune, sulphite superintendent, Port Angeles, Wash., division of Fibreboard Products Inc.

Pacific Coast industry's wage contract conference ends five days of negotiations. Will resume later in year.

Merrill E. Norwood becomes night superintendent, St. Helens Pulp & Paper Co., St. Helens, Ore.

Release of 15,000,000 feet of pulpwood from Canada for Puget Sound mills—a token shipment—announced in Vancouver, B. C.

Frank H. Wheelock, Vernon, Calif., Division, Fibreboard Products Inc., elected vice chairman of Papermakers & Associates of Southern California, succeeding W. T. Tillotson, who was elected honorary life member.

Pacific Coast Paper Box Manufacturers met in San Francisco.

### July

Congressional sub-committee hearings in Seattle receives testimony on critical manpower shortage in woods, arguments for increased woodpulp imports from Canada and opening of Olympic National Park to selective logging. F. H. Brundage, western log and lumber administrator, denies testimony of union leaders that Crown Zellerbach Corp., and other companies are by-passing high grade timber, saving it for postwar era. Tighter government controls predicted at

## PACIFIC COAST MILL CAPACITIES

(In Tons Per Day)

(These are capacities reported to PACIFIC PULP & PAPER INDUSTRY by United States (Pacific Coast) and British Columbia mills as of May 1 of each year. The table also shows increases and decreases from previous years.)

	1941	1942	1943	1944
<b>Pulp—</b>				
Unbleached Sulphite	1908	2163 (+ 255)	2178 (+ 15)	2228 (+ 50)
Bleached Sulphite	2290	2240 (+ 150)	2340 (+ 100)	2360 (+ 20)
Sulphate	1380	1560 (+ 180)	1600 (+ 40)	1600
Groundwood	2235	2291 (+ 56)	2251 (+ 40)	2275 (+ 24)
Soda	65	65	65	75 (+ 10)
<b>Total Pulp</b>	<b>7878</b>	<b>8519 (+ 641)</b>	<b>8434 (+ 85)</b>	<b>8538 (+ 104)</b>
<b>Paper—</b>				
Sulphite	963	1024 (+ 61)	922 (+ 102)	922
Sulphate Papers	830	850 (+ 20)	865 (+ 15)	865
Newsprint	1805	1756 (+ 49)	1753 (+ 3)	1753
Paperboard	1468	1468	1483 (+ 15)	1503 (+ 20)
Book Paper	105	95 (+ 10)	95	105 (+ 10)
Others	705	804 (+ 99)	923 (+ 94)	911 (+ 12)
<b>Total Paper</b>	<b>5876</b>	<b>5997 (+ 121)</b>	<b>6041 (+ 44)</b>	<b>6059 (+ 18)</b>

(On the next two pages is our annual chart showing breakdown of Pacific Coast capacities as of May 1, 1944, for different companies and types of products).

San Francisco meeting of representatives of 300 container manufacturers.

D. K. MacBain, formerly plant engineer in the Longview, Wash., pulp mill, Weyerhaeuser Timber Co., named chief engineer of Berst-Forster-Dixfield Co., New York, and was succeeded at Longview post by M. Lowell Edwards, on leave on special war work.

Norman Stables appointed sulphite superintendent, Pacific Mills Ltd., Ocean Falls, B. C.

Brown Paper Goods Co. of California, Los Angeles, purchased by Benjamin C. Betner Co., Devon, Pa.

### August

Arthur G. Wakeman, chief of Pulp & Paper Division, WPB, meets in Seattle with Puget Sound pulp industry leaders.

Paul E. Cooper, former manager of Thames Board Mills in London, is appointed vice president and general manager of Pacific Mills, Ltd., Vancouver, and Ocean Falls, B. C.

Herman Simpson resigns as manager of Sorg Paper Co.'s operations in British Columbia to join Western Gear Works, Seattle.

PASC meeting in Los Angeles, attended by 40 members and guests, plans educational program to encourage students to enter industry.

### September

Another 15,000,000 feet of British Columbia logs released to Puget Sound mills, bringing 1943 total releases to 30,000,000 feet (one-fifth of normal pre-war year).

Edge N. Wennberg becomes superintendent, Columbia River Paper Mills, Vancouver, Wash.

Oakley Dexter, after two years in high Navy Department and WPB posts in Washington, returned to Crown Zellerbach Corp., as director of purchases, Seattle.

Herve S. Humphreys arrives in Vancouver, B. C., to head Sorg Company's operations in British Columbia.

Velden M. Anderson appointed superintendent of Fir-Tex Insulating Board Co., St. Helens, Ore.

More than \$1,000,000 invested in U. S. war bonds by 14,000 Pacific Coast employees as result of 3rd War Loan Drive. Howard Smith, president of Canadian Pulp & Paper Assn., visits British Columbia mills.

### October

Pacific Section, TAPPI, meeting of 123 members in Camas, Wash., hears Prof. Bror L. Grondal, University of Washington, discuss proposed machine to saw up and chip waste wood on logged over lands, and Prof. Leo Friedman, Oregon State College, discuss experiments in making wood cork and plastics.

Crown Willamette Paper School, under Dean A. G. Natwick, reopens in Camas, Wash., with 80 students.

PASC meeting in Los Angeles, attended by 43, hears John Fiske of Westinghouse company discuss electronics.

War Labor Board denies petition of CIO for bargaining rights in Hoquiam, Wash., division of Rayonier Incorporated, upholding AFL.

Companies plus employees in British Columbia mills pledge \$3,000,000 in Victory bonds in 5th war loan campaign.

### November

Slowdown strike by CIO union in Hoquiam, Wash., division of Rayonier Incorporated, began Nov. 5, reducing operations 50 per cent.

Russell J. LeRoux, manager of the Everett, Wash., pulp mill, Weyerhaeuser Timber Co., tells Kalamazoo Valley TAPPI-superintendents meeting that the Everett hydraulic whole log barker and chipper are now making 13 per cent wood savings.

### December

CIO strike closing the Hoquiam, Wash., division of Rayonier Incorporated began December 5, after War Labor Board again named AFL as bargaining agent and company sues union members for losses. (Strike continued for 60 days.)

PASC meeting at Los Angeles hears paper by Bruce Brown, Jr., Fibreboard Products Inc., on paperboard sizing.







## OREGON

Coos Bay Pulp Corporation  
Crown Zellerbach Corp.  
Crown Zellerbach Corp.  
Crown Zellerbach Corp.  
Fir-Tex Insulating Board Co.  
Fry Roofing Co., Lloyd A.  
Hawley Pulp & Paper Co.  
Oregon Pulp & Paper Co.  
Pacific Roofing Co.  
St. Helens Pulp & Paper Co.  
Spaulding Pulp & Paper Co.

Empire.  
Lebanon  
Oregon City  
West Linn  
St. Helens  
Portland  
Oregon City  
Salem  
Portland  
St. Helens  
Newberg

75  
50  
60  
400  
125  
205  
105  
20\*  
110\*  
180  
80

50  
220  
150  
100  
120  
150

110  
\*\*  
120  
90

{ Wrapping, cartridge, powder and printed  
semi-parchmentized wrappings.  
{ News, Wrapping, Poster, Sulphite spe-  
cialties.  
Wood fibre insulating board.  
Daily capacity 250,000 sq. ft. on 1/2" basis.  
Asphalt prepared roofing.  
News, Sulphite Wrapping, Lightweight Papers, Tissue, Cover, etc.  
Sulphite Bonds, Glasine, Greaseproof.  
Roofing, 2400 rolls per 8 hours.

## CALIFORNIA

California-Oregon Paper Mills  
Certain-teed Products Corp.  
El Rey Products Co.  
Fernstrom Paper Mills  
Fibreboard Products Inc.  
Fibreboard Products Inc.  
Fibreboard Products Inc.  
Fibreboard Products Inc.  
Fry Roofing Co., Lloyd A.  
Johns-Manville Corporation  
Pacific Coast Pulp & Paper Co.  
Paraffine Cos., Inc.  
Pioneer Division, Flintkote Company  
(Formerly Los Angeles Paper Mfg. Co.)  
U. S. Gypsum Co.  
West Coast Paperboard Mills, Inc.

Los Angeles  
Richmond  
Los Angeles  
Pomona  
Antioch  
Los Angeles  
(Vernon Div.)  
Los Angeles  
(Sunset Div.)  
Stockton  
Compton  
Pittsburg  
Richvale  
Emeryville  
Los Angeles  
Los Angeles  
(Southgate)  
Los Angeles

260  
150  
35  
120  
70  
50  
20

40  
40

45  
33  
50  
200  
150  
8  
260  
150  
35  
120  
70  
50  
20

Wrapping, fruit wrap, vegetable parch-  
ment, tissues.  
Roofing, felts, mulching and building  
papers.  
Roofing, car lining, industrial flooring.  
Fruit wraps, wrapping, tissues, napkins, etc.  
{ Container board, tag, white patent coat-  
ed folding and set-up corrugated  
straw.  
{ Box board, container, patent coated  
board, Bristol, bottle cap, etc.  
Binder board and miscellaneous board.  
Boxes, cartons, cardboard specialties.  
{ 120 tons Asphalt Roofing, 30 tons Roof-  
ing Felts  
Asbestos Paper.  
Rice straw pulp produced by special pro-  
cess. Not included in soda pulp total.  
Roofing and felts, floor coverings.  
Roofing felts and boards, patent coated  
board, corrugated board, pasted board.  
News lined chip board and roofing felts.  
Chip board.

## COLORADO

Central Fibre Products Co.  
Successors to Colorado Pulp & Paper Co.

Denver

15

50

Box, liner, chip boards, wall boards, etc.

## HAWAII

Olao Sugar Company  
Hawaiian Cane Products Co.

Olao  
Hilo

(28)

Mulch Paper (Mill Idle).  
Insulating board from bagasse.  
(300,000 sq. ft. 1/2 in. thick per day).

Total daily capacities

75

105

911

1753 922 865 1503

Total Pulp Capacity—All Grades

8,538

Total Paper Capacity—All Grades

6,059

\*Total pulp capacity is 110 tons.  
\*\*Production of Bleached and Semi-Bleached Sulphate is variable.  
†Production of Bleached and Semi-Bleached Sulphate is variable.  
Total Pacific United States Capacity—Pulp, 6,618 tons; Paper, 4,869 tons.  
Total Pacific Canadian Capacity—Pulp, 1,920 tons; Paper, 1,190 tons.



# Personnel Directory of Pacific Coast Pulp, Paper, Paperboard and Roofing Mills

## BERKHEIMER MANUFACTURING CO., J. E.

2928 South M. Street.  
Tacoma, Wash.

J. E. Berkheimer, Owner,  
Pres.  
H. A. Montgomery, Mgr.  
Branch Office, Kenton Station,  
Portland, Ore.

## BRITISH COLUMBIA PULP & PAPER CO., LTD.

General Offices: Bank of Nova  
Scotia Bldg., Vancouver, B. C.

Mills: Port Alice and Woodfibre,  
B. C.

### Officers:

Lawrence Killam, Pres. &  
Manag. Dir.  
George Kidd, Vice-Pres.  
Ethel M. Dominy, Secy.  
G. D. Humphrey, Asst. Mgr.  
A. E. Baker, Purch. Agt.  
L. H. Killam, Sales.  
L. K. Bickell, Chief Chemist.  
Leo C. Kelley, Gen. Sulphite  
Supt.  
V. M. Warren, Traffic Mgr.

### Port Alice Mill:

Peter McGhee, Plant Mgr.  
R. H. Richmond, Supt.  
C. C. Ryan, Chief Eng.  
C. Davidson, Master Mech.  
W. Patterson, Steam Eng.  
Walter Warner, Log. Supt.  
Capacity, Pulp: 200 tons  
Bleached Sulphite.

### Woodfibre Mill:

E. P. Brennan, Plant Mgr.  
W. A. Bain, Chief Eng.  
William Arnold, Power Plant  
Eng.  
W. L. McGregor, Master Mech.  
Capacity, Pulp: 230 tons  
Bleached Sulphite.

## CALIFORNIA-OREGON PAPER MILLS

(Division of Columbia River  
Paper Mills.)

Los Angeles, Calif.

F. W. Leadbetter, Pres.  
Theodore Osmund, Vice-pres;  
Treas. Fur. Agt.  
A. M. Cronin, Secy.  
Nils G. Teren, Vice-pres., Mgr.  
F. R. Summers, Res. Mgr.  
Vincent P. Cole, Supt.  
Capacity, Paper: 40 tons Sulphite,  
40 tons Sulphates.

## CERTAIN-TEED PRO- DUCTS CORP.

Headquarters 120 So. La Salle  
St., Chicago, Ill.

Mill: Richmond, Calif.

H. J. Dowd, Pres.  
A. O. Graves, Secy.  
A. J. Mohan, Vice Pres.  
(All above at Chicago.)  
J. F. Meyer, Res. Mgr.  
Capacity, 45 tons Roofing,  
Felts, Mulching and Building  
Papers.

## COLUMBIA RIVER PAPER MILLS

Headquarters Office: 615 S. W.  
Alder St., Portland, Ore.

Mill Office: Vancouver, Wash.

F. W. Leadbetter, Pres.  
Nils G. Teren, Vice-Pres., Gen.  
Mgr.  
Theodore Osmund, Vice-Pres.,  
Taylor Alexander, Manager.  
Ambrose M. Cronin, Jr., Secy.  
W. F. Donnelly, Asst. Secy.  
George E. Miller, Res. Mgr.  
Edge Wennberg, Supt.  
Thomas Grant, Sulphite Supt.  
W. H. Neal, Chief Engineer.  
Thomas Parks, Master Mech.  
L. E. Orthmann, Saw Mill  
Supt.

Capacity, Pulp: 30 tons Mechan-  
ical, 140 tons Unbleached Sul-  
phite, 110 tons Bleached Sul-  
phite. Paper: 120 tons Sul-  
phites.

## COOS BAY PULP CORP.

Headquarters Office: Empire,  
Coos Bay, Ore.

J. L. Ober, President.  
C. Wylie Smith, Vice-Pres. &  
Gen. Mgr.  
(Empire, Oregon)  
Forrest W. Brainerd, Vice-  
Pres., Chester, Pa.  
William Carney, Controller,  
Chester, Pa.  
F. C. McColloch, Secretary.  
(Portland, Ore.)  
W. R. Scott, 3rd Treasurer.

Mill Office: Empire, Oregon

Mill: Coos Bay, Oregon

C. Wylie Smith, General Mgr.  
(Empire, Ore.)  
J. D. Fraser, Superintendent.  
George F. Blessing, Asst. Mgr.  
G. E. McKimmings, Master  
Mechanic.  
Harold Miller, Chief Chemist.  
Capacity, Pulp: 75 tons un-  
bleached Sulphite.

Mill: Anacortes, Wash.

C. Wylie Smith, Gen. Mgr.,  
Empire, Ore.  
J. R. Lewis, Superintendent  
Walter Mower, Asst. Supt.  
Clifford Reynolds, Chief Chem-  
ist.  
Herman L. Hansen, Resident  
Manager.  
Capacity, Pulp: 90 tons un-  
bleached Sulphite.

## CROWN ZELLERBACH CORPORATION

General Offices: 343 Sansome  
St., San Francisco, Calif.  
Pulp and Paper Mills: Camas,  
Port Angeles, Port Townsend,  
Wash.; Lebanon and West  
Linn, Oregon; Carthage, N. Y.

Converting Plants: Harlingen,  
Texas; Oakland and Los An-  
geles, Calif.; North Portland,  
Oregon.

Officers:

Louis Bloch, Chairman of the  
Board.  
J. D. Zellerbach, Pres.  
A. B. Martin, Exec. Vice-Pres.  
R. A. McDonald, Exec. Vice-  
Pres., (Sales).  
H. L. Zellerbach, Exec. Vice-  
Pres., (Zellerbach Paper  
Co.)  
Thos. McLaren, Vice-Pres. &  
Treas.  
Albert Bankus, Vice Pres.  
(Mfg.)  
J. Y. Baruh, Vice-Pres.  
(Los Angeles)  
D. S. Denman, Vice-Pres.,  
(Thr. & Log. Dept.) Seattle.  
A. B. Layton, Vice-Pres. (on  
leave with U.S.N.).  
F. N. Youngman, Vice-Pres.  
(Portland)  
G. E. Young, Vice-Pres.  
(Newsprint)  
A. R. Heron, Vice-Pres. (On  
leave of absence).  
D. J. Galen, Secy.  
A. I. Bennett, Comptroller.  
F. A. Drumb, Dir. Indus. &  
Public Relations.  
Oakley W. Dexter, Director of  
Purchases, Seattle.  
Francis T. Bowles, Resident  
Pur. Agt., San Francisco.  
S. E. Ringheim, Division Pur.  
Agt. (Seattle)  
J. J. Seid, Traffic Mgr.  
A. Van der Zwiop, Insurance  
Supervisor.

## CENTRAL TECHNICAL DEPT.

Camas, Wash.  
W. R. Barber, Technical Dir.  
R. G. Misphey, Asst. Technical  
Director.

## DIVISIONS

Crown Willamette Paper Co.,  
Division of Crown Zellerbach  
Corp.

Camas, Wash.

J. E. Hanny, Res. Mgr.  
G. W. Charters, Asst. Res.  
Mgr.  
A. G. Natwick, Asst. Res.  
Mgr.  
Frank F. Sullivan, Asst. to  
Res. Mgr.  
G. M. Julien, Asst. to Res.  
Mgr.  
H. E. Burdon, Office Mgr.  
H. D. Kennedy, Purch. Agt.  
H. M. Green, Order Dept.  
V. C. Gault, Personnel Supvr.  
Mrs. Vera Berney, Asst. to  
Personnel Supvr.  
J. F. Robertson, Safety Supvr.  
G. H. Gallaway, Tech. Supvr.  
Gus Ostenson, Paper Mill  
Supt.

E. Webberley, Beater Room  
Supt.

Paul V. Millard, Finish Room  
Supt.

J. V. Savage, Sulphite Mill  
Supt.

L. D. McGlothlin, Sulphate  
Mill Supt.

F. R. Slevers, Groundwood  
Foreman.

J. L. Shively, Bag Factory  
Supt.

H. W. Duvall, Converting  
Plant Foreman.

C. Giegler, Napkin Dept.  
Foreman.

Herman Junge, Woodmill  
Supt.

O. T. Defleux, Supt. Steam  
Plant.

Fred Stevey, Chief Elect.  
Lyall Burnett, Eng. Dept.  
Supvr.

I. C. Shokwet, Plant Engineer.  
L. W. Morgan, Foreman Pipe  
Fitters.

Gordon Atkins, Foreman Paper  
Machine Millwrights.

Claude Smith, Yard Foreman.  
Clifford Arnold, Shipping  
Foreman.

Howard Burrell, Real Estate.

Capacity, Pulp: 90 tons Me-  
chanical, 350 tons Unbleached  
Sulphite, 150 tons Bleached  
Sulphite, 195 tons Unbleached  
Sulphate. Paper: 245 tons  
Sulphites, 190 tons Sulphates.

Washington Pulp & Paper Corp.,  
Division of Crown Zellerbach  
Corp.

Port Angeles, Wash.

R. A. Dupuis, Res. Mgr.  
H. L. Day, Office Mgr.  
James Phillips, Personnel &  
Safety Supvr.  
L. L. Dupuis, Gen. Supt.  
J. W. Edwards, Asst. Supt.  
O. S. Cauvel, Sulphite Supt.  
M. L. Rauch, Groundwood  
Supt.

T. B. Hargreaves, Maint.  
Eng.

G. R. Davison, Woodmill  
Supt.

J. Somers, Finish Room  
Foreman.

W. L. Kidd, Yard Foreman.  
L. E. Warwick, Asst. Maint.  
Eng.

Erret Fleenor, Elec. Foreman.  
Wm. M. Locke, Steam Eng.

Capacity, Pulp: 310 tons Me-  
chanical, 60 tons Unbleached  
Sulphite. Paper: 355 tons  
Newsprint.

National Paper Products Co.,  
Division of Crown Zellerbach  
Corp.

Port Townsend Wash.

E. W. Erickson, Res. Mgr.  
F. L. Ziel, Asst. Res. Mgr.

B. F. Mulaney, Personnel &  
Safety Supvr.

Maxwell Loomis, Personnel &  
Safety Supvr.

Gerald Hunt, Office Mgr.  
H. E. Bukowsky, Plant Eng.

Harold Quigley, Paper Mill  
Supt.

N. A. Lewthwaite, Pulp Mill  
Supt.

D. E. Baker, Woodroom Fore-  
man.

D. J. Wollam, Steam & Power  
Eng.

A. J. Bogan, Master Mech.  
E. F. Drake, Chief Elect.

G. W. Shaffer, Pipe Foreman.  
William Bishop, Yard Fore-  
man.

G. B. Thomas, Finishing &  
Shipping Foreman.

Urban Grandaw, Bag Fact.  
Foreman.

C. Bunge, Tech. Supvr.

Capacity, Pulp: 295 tons Un-  
bleached Sulphate. Paper:  
170 tons Sulphates, 120 tons  
Board.

Crown Willamette Paper Co.,  
Division of Crown Zellerbach  
Corp.

Lebanon, Ore.

M. J. Otis, Res. Mgr.  
H. C. Olds, Office Mgr.

C. E. Ackley, Supt.  
Hugh Croner, Personnel &  
Safety Supvr.

E. C. Leckband, Master Mech.  
Louren LaFond, Sulphite Supt.

J. O. Morris, Steam Plant  
Eng.

R. D. Waddell, Tech. Supvr.  
R. W. Weeks, Finish Room  
Foreman.

L. L. Loftin, Purch. Agt.

Capacity, Pulp: 50 tons Un-  
bleached Sulphite. Paper: 50  
tons Sulphites.

Crown Willamette Paper Co.,  
Division of Crown Zellerbach  
Corp.

West Linn, Ore.

C. E. Bruner, Res. Mgr.  
C. A. Enghouse, Asst. to Res.  
Mgr.

Wm. Little, Office Mgr.  
M. A. Willson, Mill Supply  
Supvr.

H. A. Zirbel, Order & Ship-  
ping Supvr.

J. A. Ream, Personnel &  
Safety Supvr.

E. H. Nunn, Tech. Supvr.  
R. K. Pratt, Plant Eng.

R. A. Austin, Woodmill Fore-  
man.

A. Palmer, Groundwood Mill  
Foreman.

Jan Haugerod, Sulphite Mill  
Foreman.

J. A. Harris, Paper Mill Supt.  
F. A. Hammerle, Finish. Fore-  
man.

E. T. Walker, Chief Steam  
Eng.

W. B. Boutwell, Chief Elect.  
J. B. Rauch, Yard Foreman.

Capacity, Pulp: 400 tons Me-  
chanical, 125 tons Unbleached  
Sulphite. Paper: 223 tons  
Newsprint, 35 tons Sulphites,  
99 tons other.

Pacific Mills, Ltd., Canadian  
Subsidiary of Crown Zeller-  
bach Corp.

Executive Offices: Vancouver,  
B. C.

Mills: Ocean Falls, B. C., and  
Vancouver, B. C.

### Officers:

A. B. Martin, Pres.

P. E. Cooper, Vice-Pres. &  
Gen. Mgr.

A. A. Young, Vice-Pres. &  
Treas.

H. C. Pinn, Vice-Pres.

J. H. Lawson, Secy.

R. H. R. Young, Res. Mgr.

J. Petrie, Asst. Res. Mgr.

Kenneth Logan, Tech. Supvr.

G. J. Bryant, Master Mech.

A. M. Charleson, Woodmill  
Foreman.

C. P. Kelley, Paper Mill  
Supt.

W. E. Locke, Plant Eng.

Norman Stables, Sulphite Supt.



H. Bamford, Groundwood Supt.  
E. Walloe, Sulphate Supt.  
S. Jemson, Steam Plant Eng.  
Capacity. Pulp: 230 tons Mechanical, 90 tons Unbleached Sulphite, 135 tons Unbleached Sulphate. Paper: 240 tons Newsprint, 47 tons Sulphites, 105 tons Sulphates.

## EL REY PRODUCTS CO.

1633 San Pablo St.  
Los Angeles, 13, Calif.

Robert E. Brown, Pres. & Treas.  
Harold D. Brown, Secy.  
Saturating and Deadening Felts—Red and Gray Sheathing. 80,000 lbs. 24 hours.

## EVERETT PULP & PAPER CO.

P. O. Box 1008,  
Everett, Wash.

Mill: Everett, Wash.  
W. J. Pilz, President & Mgr.  
A. B. Moody, Vice-Pres., Asst. Mgr. & Treas.  
G. A. Blomberg, Sec. & Asst. Treas.  
L. P. Fortier, Gen. Supt.  
K. A. Knudson, Purch. Agt.  
F. M. Van-Schalk, Traf. Mgr.  
G. A. Steverling, Mgr. Converting Dept.  
C. Torgeson, Mgr. Mill Order Dept.  
C. B. Niel, Supt. Maint. & Power.  
G. H. Hart, Chief Elect.  
John Shedd, Chief Chem.  
J. J. Murphy, Convert. Plant Supt.  
Vern Moore, Finish. Room Supt.  
J. C. Hayes, Forester.  
C. L. Pitcher, Master Mech.  
Fred Buckley, Asst. Chief Eng.  
H. Radford Russell, Asst. Paper Mill Supt.  
E. H. Abner, Safety Eng.  
R. A. Gates, Mgr., Main Mill Sales, San Francisco.  
John E. Horton, Mgr., Stat'y & Tablet Dept. Sales, San Francisco.  
A. A. Ernst, Mgr., Sales Office, Los Angeles.  
Jerry LeCuyer, Sales Office, Everett.  
Capacity. Pulp: 60 tons Soda. Paper: 80 tons Book.

## EVERETT PULP & PAPER CO.

(Formerly Cascade Paper Co.)

West Tacoma, Wash.  
Mill Idle.

W. J. Pilz, President & Mgr.  
A. B. Moody, Vice-Pres., Asst. Mgr. & Treas.  
G. A. Blomberg, Sec. & Asst. Treas.  
L. P. Fortier, Gen. Supt.  
A. N. Drips, Mill Mgr.  
Capacity. Paper: 25 tons Book.

## FERNSTROM PAPER MILLS, INC.

1450 West Holt Ave.  
Pomona, Calif.

Operating Organization:  
F. O. Fernstrom, Pres.  
J. E. Maurer, Asst. to Pres.  
J. W. Genuit, Vice-Pres. & Sales Mgr.  
B. S. Neuffer, Vice-Pres. in charge of Southern Div., Fernstrom Paper Mills, Inc.  
C. G. Frampton, Supt.  
R. S. Buckley, Chief Chemist.  
R. A. Baum, Asst. Chief Chemist.  
E. G. Swanberg, Production Mgr.  
R. L. Carr, Chief Accountant.  
M. A. Moss, Asst. to Plant Engineer.  
J. H. Vought, Purchasing Agt.  
F. W. Scrimmes, Credit, Traffic Mgr., Asst. Sec.  
Albin Nelson, Asst. Supt.  
F. D. Backer, Foreman Frtg.  
S. E. Stevenson, Foreman Converting.  
F. M. Schmidt, Shipping Clerk.

Board of Directors:  
Erik Fernstrom, Chairman of Board.  
F. O. Fernstrom, Pres.  
H. H. Johnson  
D. P. Nichols, Secretary.  
J. A. Maurer, Vice-Pres.  
Treas.  
Capacity. Paper: 50 Tissues.

## FIBREBOARD PRODUCTS INC.

General Offices: 710 Russ Bldg.  
San Francisco, Calif.  
Mills: Pulp and Board, Port Angeles, Wash.; Board Mills and Converting Plants, Antioch, Los Angeles (Vernon), and Stockton, Calif.; Summer, Wash.; Binder Board Mill, Los Angeles, Calif.; Converting Plants, San Francisco and Southgate, Calif., and Portland, Ore.

Officers:  
J. D. Zellerbach, Chairman of the Board.  
D. H. Patterson, Jr., Pres. & Gen. Mgr.  
T. Noel Bland, Vice-Pres. & Asst. Gen. Mgr.  
N. M. Brisobols, Vice-Pres. in Chg. of Operations (Stockton)  
E. J. Farina, Vice Pres. in Chg. of Sales.  
V. C. Hobbs, Secy.  
J. F. Garvin, Treas.  
H. L. Weber, Purch. Agt.  
H. A. Lincoln, Traffic Mgr.

## DIVISIONS

### PORT ANGELES DIVISION

1313 Marina Drive.  
Port Angeles, Wash.  
C. V. Basom, Res. Mgr.  
P. C. Nash, Office Mgr.  
Nelson Hartnagel, Chief Chem. & Asst. Res. Mgr.  
R. O. Holcomb, Asst. Chief Chem.  
J. W. Bonnar, Chief Engineer.  
Fred Miller, Chief Electrician.  
T. H. Beaume, Sulphite Mill Supt.  
E. J. Cavanaugh, Resident Eng.  
J. H. Clay, Machine Foreman.  
C. P. Meagher, Board Mill Supt.  
R. G. Stanard, Finish. Room Supt., Ship.  
R. A. Lawrence, Personnel Mgr.  
A. F. Benson, Master Mech.  
G. M. Marvin, Purch. Agent.  
H. E. Shellhear, Machine Foreman.  
Capacity. Pulp: 25 tons Mechanical, 85 tons Unbleached Sulphite. Paper: 65 tons Board.

### SUMNER DIVISION

Sumner, Wash.  
M. E. Sanford, Res. Mgr.  
A. J. Erickson, Office Mgr.  
J. J. Sperb, Plant Eng., Master Mech.  
R. W. Vaughan, Chief Chem. (Safety Suprv.)  
R. J. Boyle, Chief Elect.  
W. Talkington, Prod. Mgr.  
H. O. Meyers, Bd. Mill Supt.  
V. M. Buchanan, Night Bd. Mill Supt.  
J. H. Dunn, Convert. Plant Supt.  
L. O. Fox, Acct.  
V. M. Gerhard, Personnel Mgr. Paymaster.  
F. W. Hilliard, Purch. Agt.  
J. T. Stahlhut, Shipping Supt.  
Capacity. Paper: 75 tons Board.

### PORTLAND DIVISION

50 N. E. Oregon St.  
Portland, Ore.  
J. B. Martin, Jr., Res. Mgr.  
E. E. Olsson, Office Mgr.  
S. G. Pettitt, Superintendent.  
Folding cartons, set up boxes, labels.

### SUNSET DIVISION

3720 South Soto St.  
Los Angeles, Calif.  
Bruce F. Brown, District Mgr.  
H. D. Owen, Plant Mgr.  
D. H. Stein, Board Mill Supt.  
Capacity. 3 tons Board.

## VERNON DIVISION

4444 Pacific Blvd.  
Los Angeles, Calif.  
Harvey M. Brown, Res. Mgr.  
Bruce F. Brown, Manager Southern District.  
H. L. Miller, Office Mgr.  
Bruce F. Brown, Jr., Chief Chemist.  
E. Wilhelm, Chief Engineer.  
Frank Wheelock, Board Mill Manager.  
George Eberhard, Board Mill Supt.  
M. G. Brown, Master Mech.  
A. J. Smith, Purch. Agt.  
B. J. Flynn, Supt. of Ship.  
R. C. Cotner, Credit Mgr.  
E. Switzer, Night Board Mill Supt.  
A. Dahl, Night Board Mill Supt.  
F. Crotchett, Night Board Mill Supt.  
Walter Pittman, Plant Eng.  
O. C. Majors, Dist. Sales Mgr.  
J. A. McDaniel, Asst. District Sales Mgr.  
George F. Ford, Converting Plant Mgr.  
Robt. Walters, Convert. Plant Supt.  
Capacity. Paper: 150 tons Board.

## SOUTH GATE DIVISION

4222 Santa Ana St.  
South Gate, Calif.  
O. Hallburn, Res. Mgr.  
E. E. Chapel, Office Mgr.  
C. D. Conner, Plant Eng.  
F. W. Hill, Converting Plant Supt.  
H. Reed, Personnel Dept.  
Oscar Hallburn, Chief Acct.  
T. D. Halliwell, Warehouse Foreman.  
Wm. G. Russell, Shipping Corrugated Board.

## ANTIOCH DIVISION

Antioch, Calif.  
W. Hawkey, Res. Mgr.  
M. A. Rodrigues, Office Mgr.  
Chas. M. Meyers, Supt.  
C. M. Stitt, Asst. Res. Mgr.  
E. O'Connor, Chief Chem.  
Walter Altizer, Chief Eng.  
Paul Ayers, Chief Electrician.  
Capacity. Paper: 200 tons Board.

## STOCKTON DIVISION

Stockton, California  
Paul H. Keller, Res. Mgr.  
W. W. Burk, Off. Mgr.  
Don Monk, Plant Eng.  
H. L. Rammer, Chief Chemist  
V. A. Young, Chief Eng.  
S. E. Stittes, Chief Elect.  
J. A. Quinn, Purch. Agt.  
A. E. Bolter, Conv. Plt. Supt. (Carton)  
Harry Livezey, Conv. Plt. Supt. (Container)  
Les Mullins, Bd. Mill Supt.  
Nels Anderson, Designing Eng.  
Chas. Orr, Supt. (Maintenance)  
Capacity: Paper: 280 tons Board.

## SAN FRANCISCO DIVISION

1789 Montgomery Street  
San Francisco, Calif.  
M. J. McAuliffe, Plant Supt.  
D. R. Hay, Office Mgr.  
H. W. Waddington, Plant Eng.  
A. Mark, Shipping & Warehouse Supt.

## FIR-TEX INSULATING BOARD CO.

Box 1186  
St. Helens, Oregon

Peter Kerr, Pres.  
James McDonald, Vice-Pres.  
R. W. Simeral, Vice-Pres.  
Gen. Mgr., Purch. Agt.  
Velden Anderson, Gen. Supt.  
John S. Coke, Sec.  
N. J. Barbare, Treas.  
Roy Huntsinger, Plant Eng.  
Glenn W. Cheney, Sales Mgr.  
J. G. Long, Technical Dir.  
Eugene Hegele, Off. Mgr.  
Berney Luff, Supt. Shippg. & Finish.  
Capacity. 250,000 sq. ft. Wood Fibre Insulating Board daily on 1/4-inch basis.  
W. B. Kelley, Factory Mgr.  
H. Bardsley, Supt. Paper Mill.  
H. T. Broderson, Chief Chem.  
F. V. Galbraith, Personnel Mgr.

## FLINTKOTE CO.

(Pioneer Division).

Los Angeles, Calif.

I. J. Harvey, Pres.  
L. M. Simpson, Vice-Pres., Gen. Mgr.  
W. A. Kinney, Prod. Mgr.  
Glen A. Phillips, Supt.  
C. T. Crawley, Purch. Agt.  
John Van Ounsem, Tech. Dir.  
M. E. Campbell, Chief Chem.  
Dr. John J. Stanko, Research Dir.  
A. E. Carlson, Sales Mgr. Board Div.  
Capacity. Paper: 150 tons Board, 70 tons other.

## FRY ROOFING CO., LLOYD A.

Headquarters Office: 5302 W. 66th St., Chicago, Ill.  
Mill: 3750 N. W. Yeon Ave. Portland, Ore.  
B. B. Alexander, Gen. Mgr.  
J. J. Alexander, Off. Mgr.  
Capacity. Paper: 180 tons Asphalt Prepared Roofing.

## GRAYS HARBOR PULP & PAPER CO.

Headquarters Office: Hammermill Paper Co., Hammermill Rd., Erie, Pa.  
Mill Office: Hoquiam, Wash.  
N. W. Wilson, Pres.  
D. S. Leslie, Vice-Pres.  
W. S. Lucey, Vice-Pres. & Gen. Mgr.  
W. F. Bromley, Sec.  
W. T. Brust, Treas.  
J. D. Sullivan, Purch. Agt.  
Lyall Tracy, Res. Mgr.  
J. W. Bagwell, Asst. Mgr.  
Larry Hay, Office Mgr.  
J. C. Mannion, Paper Mill Supt.  
L. G. Pfeffer, Paper Finish. Supt.  
G. W. McKay, Personnel & Safety Supt.  
Capacity. Paper: 65 tons Sulphites.

## HAWLEY PULP & PAPER CO.

Oregon City, Oregon

John H. Smith, Pres., Gen. Mgr.  
Carl E. Braun, Vice-Pres., Mill Mgr.  
Austin Nickels, Gen. Supt.  
Louis Woerner, Sec. & Treas.  
M. R. Lindie, Asst. Treas.  
E. Stoddard, Office Mgr.  
K. G. Urfer, Purch. Agt.  
Carl A. Sholdebrand, Sulphite Supt.  
A. D. Hofsfeldt, Sales Mgr.  
E. Schwietz, Plant Eng.  
L. Smith, Convert. Plt. Supt.  
Clyde Helsaby, Finish. Supt.  
F. Weibser, Chief Chem.  
J. A. Wilson, Asst. Mill Mgr., Asst. Sec.  
James Hollender, Master Mech.  
Paul Trech, Sales Dept.  
W. B. O'Malley, Sales Dept.  
Sherman Hall, Sales Dept.  
Capacity. Pulp: 205 tons Mechanical, 105 tons Unbleached Sulphite. Paper: 150 tons Newsprint, 40 tons Sulphites.

## INLAND EMPIRE PAPER COMPANY

Millwood, Wash.

A. W. Witherspoon, Pres.  
L. A. Stilson, Vice-Pres.  
W. W. Witherspoon, Secy-Treas.  
C. A. Buckland, Gen. Mgr.  
J. L. Jancek, Gen. Supt.  
J. H. Butler, Jr., Asst. Mgr.  
Myron W. Black, Asst. Mgr. Tech Dir.  
L. R. Bennett, Sales Mgr.  
Dean H. Banta, Fur. Agt.  
Capacity. Pulp: 90 tons Mechanical, 33 tons Unbleached Sulphite. Paper: 65 tons Newsprint, 40 tons Sulphites.

## JOHNS-MANVILLE PRODUCTS CORP.

Headquarters Office: 23 East 40th St., New York, N. Y.  
Mill Office: Pittsburg, Calif.



H. E. Miller, Plant Eng.  
J. J. Shirley, Traffic Mgr.  
Capacity. 30 tons Asbestos  
Paper.

### LONGVIEW FIBRE COMPANY

Longview, Washington

H. L. Wollenberg, Pres.  
D. C. Everest, Vice-Pres.  
C. J. Schoo, Vice-Pres.  
R. S. Wertheimer, Vice-Pres.,  
Res. Mgr.  
L. C. Peabody, Secy., Treas.,  
Asst. to Pres.  
D. H. Cairns, Mgr. Paper  
Sales  
Tony Siebers, Paper Mill Supt.  
William E. Clarke, Asst.  
Paper Mill Supt.  
R. G. Armstrong, Asst. Secy.  
C. R. Adams, Asst. Treas.  
Carl Fahlstrom, Asst. Res  
Mgr.  
C. J. Bastedo, Sales Mgr.  
H. Hoehne, Pulp Mill Supt.  
M. V. Roley, Bag Mill Supt.  
W. D. Rigg, Chief Eng.  
J. W. Schuch, Chief Elec. Eng.  
Mike Price, Fin. Room &  
Shipping Supervisor.  
Dave Watson, Purch. Agt.  
J. A. Wilcox, Process. Eng.  
C. J. Page, Box Pit Supt.  
Joe Fotheringill, Safety Eng.  
Boyd Wickwire, Personnel  
Mgr.  
C. W. Ragdale, Supt. Con-  
struction.  
H. W. Dauterman, Paper Mill  
Tour Boss.  
H. J. Drew, Paper Mill Tour  
Boss.  
C. J. Dupras, Paper Mill Tour  
Boss.  
Roy McCallum, Paper Mill  
Tour Boss.  
W. A. Wenzel, Pulp Mill Tour  
Boss.  
J. G. Carson, Pulp Mill Tour  
Boss.  
J. Peake, Pulp Mill Tour Boss.  
Gebhart Becker, Pipefitter  
Foreman.  
C. G. Ditter, Chief Clk., Bag  
Plant.  
F. A. Horn, Master Mechanic  
Virgil M. Sutherland, Chief  
Inst.  
Capacity. Pulp: 100 tons Me-  
chanical, 350 tons Unbleached  
Sulphate. Paper: 210 tons  
Sulphates, 230 tons Board.

### OREGON PULP & PAPER CO.

Salmon, Oregon

F. W. Leadbetter, Pres.  
Theodore Osmond, Vice-Pres;  
Pur. Agt.  
Nils G. Teren, Vice-Pres.,  
Gen. Mgr.  
A. M. Cronin, Secy.  
W. S. Walton, Treas.  
K. W. Heinlein, Res. Mgr.  
J. D. Kaster, Jr., Paper Mill  
Supt.  
Edward A. Weber, Sulphite  
Supt.  
O. P. Wegner, Master Mech.  
Capacity. Pulp: 20 tons Un-  
bleached Sulphite, 110 tons  
Bleached Sulphite. Paper: 120  
tons Sulphites.

### PACIFIC PAPER BOARD COMPANY

Longview, Washington

E. E. Flood, Pres.  
Capt. Everett E. Flood, Vice-  
Pres.  
T. J. Kennedy, Sec. & Sales  
Mgr.  
E. W. Truman, Asst. Sec.  
F. D. Geiger, Asst. Sec.  
Henry Armstrong, Purch. Agt.  
Ralph Mason, Chief Eng.  
William Ball, Master Mech.  
Arthur Arvedson, Asst. Master  
Mech.  
Kenneth Gordon, Prod. Mgr.  
James Orgeneal, Chief Elec.  
H. F. Arvedson, Bldg. Supt.  
Albin Sonderens, Supt. Con-  
verting.  
H. H. James, Personnel Offi-  
cer.  
Arnold Maahs, Paper Mill  
Tour Boss.  
John Baum, Mill Supt.  
Capacity. Pulp: 30 tons Me-  
chanical. Paper: 80 tons  
Board.

### PACIFIC COAST PAPER MILLS OF WASH., INC.

Bellingham, Washington  
J. J. Herb, Pres.

F. J. Herb, Vice-Pres. & Gen.  
Mgr.  
V. A. Hughes, Secy.  
William McCush, Treas.  
P. J. Onkels, Plant Supt.,  
Purch. Agt.  
George Johnstone, Master Me-  
chanic.  
William Dynes, Finish. Room  
Supt.  
F. J. Block, Shppg. Foreman.  
Capacity. Paper: 22 tons Sul-  
phites.

### PACIFIC COAST PULP & PAPER CO.

Richvale, California

D. M. Thomson, Pres.  
Capacity. Pulp: 5 tons Soda.

### THE PARAFFINE COMPANIES, INC.

Emeryville, California

R. S. Shainwald, Ch. Bd.  
W. H. Lowe, Pres.  
R. H. Shainwald, Exec. Vice-  
Pres.  
C. C. Gibson, Vice-Pres. &  
Treas.  
R. Hilliard, Vice-Pres. in Chg.  
Sales.  
F. M. Prince, Vice-Pres. in  
Chg. Export.  
F. M. Tussing, Mgr. of Mfg.  
A. W. Brown, Secy.  
R. E. Dexter, Asst. Secy.  
Jean Holmes, Asst. Treas.  
J. H. Varley, Mill Supt.  
A. H. Silverstone, Purch. Agt.  
G. T. Kurtz, Chief Chemist.  
S. A. Cohen, Dir. Research  
& Development.  
Fred W. Rea, Mgr., Public &  
Ind. Relations Depts.  
Fred Stoltz, Supt. Paint.  
W. B. Stitt, Mach. Supt.  
W. A. Magee, Mgr. Prod. Con-  
trol.  
I. Hovgaard, Asst. Mgr. Mfg.  
L. Selfert, Personnel Dir.  
Capacity. 120 tons Roofing and  
Felts, Floor Covering.

### POWELL RIVER CO., LTD.

Headquarters Office: 1204 Stan-  
dard Bank Bldg., Vancouver,  
B. C.

Mill Office: Powell River, B. C.

S. D. Brooks, Ch. Bd. Dir.  
Harold S. Foley, Pres.  
R. Bell-Irving, Vice-Pres.  
G. F. Laing, Vice-Pres.  
J. H. Lawson, Secy.  
J. C. Hill Asst. Secy.  
J. N. Turvey, Comptroller.  
D. A. Evans, Res. Mgr.  
Russell M. Cooper, Gen. Supt.  
R. A. Baker, Purch. Agt.  
Ross Black, Mech. Supt.  
R. C. Bledsoe, Chief Chem.  
Harold Moorhead, Res.  
Engineer  
F. J. Hamilton, Sulphite Mill  
Supt.  
W. E. MacGillivray, Ground-  
wood Supt.  
F. R. Riley, Paper Mill Supt.  
J. P. Flett, Employment Supt.  
A. H. Robertson, Plant Eng.  
E. G. Craigen, Elec. Supt.  
T. A. Wyborn, Steam Plant  
Supt.  
E. Pirie, Safety Insp.  
J. McIntyre, Public Relations.  
I. H. Andrews, Control Supt.  
O. Crawford, Traffic Mgr.  
Angus Armour, Order &  
Shppg. Dept. Head.  
H. B. Urquhart, Asst. Ground-  
wood Mill Supt.  
W. A. Snyder, Asst. Paper  
Mill Supt.  
N. C. Fraser, Finish. Room  
Supt.  
A. W. DeLand, Mgr. Forest  
Dept.  
Daily Capacity. Newsprint pa-  
per: 720 tons. Mechanical  
Pulp: 656 tons; Chemical  
Pulp: 155 tons. Strong Un-  
bleached Sulphite Pulp for  
sale: 130 tons.

### PUGET SOUND PULP & TIMBER CO.

Bellingham, Washington

Fred G. Stevenot, Pres. & Dir.  
Lawson P. Turcotte, Executive  
Vice-Pres. & Director.

Harry M. Robbins, Vice-Pres.  
and Director.  
Robert H. Evans, Legal Coun-  
sel & Dir.  
J. L. Rucker, Dir.  
Dr. William C. Keyes, Dir.  
Edward Anderson, Dir.  
Ralph M. Roberg, Sales Mgr.,  
and Vice-Pres.  
Harry A. Binzer, Secretary.  
William Sealy, Treasurer.  
Don W. Smith, Purch. Agt.  
Erik Ekholm, Gen. Supt.  
Carl V. Sahlin, Mgr. Logging  
Dept.  
Eric Ericsson, Technical Dir.  
H. D. Cavin, Resident Eng.  
(In U. S. Navy)  
H. C. Haner, Acting Plant  
Engineer.  
Frank Brown, Master Mech.  
Russell E. de Lopez, Traffic  
Mgr.  
Fred Gilmore, Asst. Supt.  
Sidney Collier, Asst. Supt.  
Glen Crout, Shppg. Clerk. (In  
U. S. Army)  
J. L. Smith, Acting Shipping  
Clerk.  
Capacity. Pulp: 460 tons Un-  
bleached Sulphite.

### RAYONIER INCORPORATED

Head Office: 122 East 42nd St.  
New York 17, New York

Mills: Hoquiam, Port Angeles  
and Shelton, Washington;  
Fernandina, Florida.  
Edward Bartsch, President.  
Edward M. Mills, Chairman  
Executive Committee.  
Charles H. Conrad, Sec.-Treas.  
L. G. Wilson, Comptroller.  
Dr. R. M. Pickens, Director  
of Sales.  
H. E. Kerry, Traffic Mgr.  
Shelton, Washington: Central  
Laboratory, Dr. A. N. Par-  
rett.

Seattle Office: 719 White Bldg.,  
Seattle 1, Washington  
M. B. Houston, Vice-President  
and Pacific Northwest Rep-  
resentative.  
J. D. Sullivan, Purch. Agt.  
Woodlands Division—  
M. N. Deggeiler, Manager.

### DIVISIONS GRAYS HARBOR DIVISION Hoquiam, Washington

W. S. Lucey, Res. Mgr.  
Lyall Tracy, Asst. Mgr.  
John Bagwell, Northwest Mills  
Labor Relations Mgr.  
Larry Hay, Office Mgr.  
O. R. McDonald, Pulp Mach.  
Room Supt.  
A. Gustin, Sulphite Mill Supt.  
C. H. Woodford, Woodroom  
Supt.  
L. R. Wood, Plant Eng.  
W. G. Clayton, Steam Plant  
Eng.  
A. S. Boag, Chief Elect.  
L. G. Pfeffer, Pulp Finish.  
Supt.  
O. N. Sangder, Chief Chem.  
Olavi Aho, Asst. Chief Chem.  
G. W. McKay, Personnel &  
Safety Suprv.  
Capacity. Pulp: 300 tons  
Bleached Sulphite.

### PORT ANGELES DIVISION Port Angeles, Wash.

W. E. Breitenbach, Res. Mgr.  
H. A. Sprague, Asst. Res.  
Mgr.  
C. T. Mulledy, Gen. Supt.  
J. G. Hardy, Pulp Mill Supt.  
S. W. Grimes, Personnel &  
Safety Suprv.  
Otto Frame, Pulp Mach. Rm.  
Supt.  
G. L. Johnston, Wood Room &  
Chipping Plant Supt.  
Meder Johnson, Res. Eng.  
Fred Dangerfield, Mstr. Mech.  
Pat Cannon, Steam House  
Supt.  
Floyd Gossard, Pulp Finish.  
and Warehouse Supt.  
H. Springer, Chief Elect.  
H. T. Fretz, Chief Chem.  
Henry V. Charnell, Jr., Asst.  
Chief Chem.  
Myron A. Scott, Office Mgr.  
Capacity. Pulp: 280 tons  
Bleached Sulphite.

### SHELTON DIVISION

Shelton, Wash. (Mill Idle)

George Cropper, Res. Mgr.  
F. R. Pearson, Asst. Mgr.  
J. G. E. Ellis, Plant Eng.  
W. F. McCann, Master Mech.  
W. W. Kullrich, Chief Elect.

G. C. Eck, Asst. Chief Chem.  
Capacity. Pulp: 200 tons  
Bleached Sulphite.

### ST. HELENS PULP & PAPER CO.

St. Helens, Oregon

Max Oberdorfer, Pres., Gen.  
Mgr.  
Dr. Robert H. Ellis, Vice-  
Pres.  
Max Oberdorfer, Jr., Plant  
Engineer.  
Irving T. Rau, Sec., Treas.,  
Purch. Agt.  
Merrill Norwood, Night Supt.  
Sverre Strom, Mech. Engr.  
R. E. Drane, Chief Chem.  
A. A. Weber, Asst., Off. Mgr.  
L. V. Radke, Asst. Chem.  
C. W. Sherman, Mgr. Bag  
Mill Mgr. Converting Dept.  
C. V. Smith, Chief Elect.  
H. D. Johnston, Dir. Person-  
nel.  
J. Zankler, Fin. Room Supt.,  
Shppg. Supt.  
H. R. O'Dell, Maint. Supt.  
F. Monahan, Paper Mill Supt.  
Ray Brown, Pulp Mill Supt.  
Chester Gillihan, Safety Eng.  
H. C. Carwell, Timber Mgr.  
J. A. Moore, Traffic Mgr.  
Capacity. Pulp: 180 tons Un-  
bleached Sulphate. Paper: 150  
tons Sulphates.

### ST. REGIS PAPER COMPANY

KRAFT PULP DIVISION

Headquarters Office: 230 Park  
Ave. New York, N. Y.

Mill Office: Tacoma, Wash.

Roy K. Ferguson, Pres.  
Walter DeLong, Vice-Pres. &  
Mgr.  
Herman Gevers, Consultant.  
A. C. McCorry, Supt.  
James Ruck, Supt.  
E. J. Hayes, Office Mgr.  
J. Lamb, Purch. Agt.  
Ivan Gingrich, Chief Asst.  
Paul Holmes, Chief Eng.  
W. J. Thomas, Chief Elect.  
Allen M. Cadegan, Chief  
Chemist.

Bert Doolittle, Sawmill Supt.  
Charles Munt, Master Mech.  
Wayne Oja, Asst. Engineer.  
J. A. Reeder, Traffic Mgr.  
W. H. Davis, Log Buyer.  
L. O. Reisinger, Personnel  
Mgr.

Capacity. Pulp: 325 tons Un-  
bleached Sulphate Pulp.  
Bleaching Capacity, 250 tons.

### SIDNEY ROOFING & PAPER CO., LTD.

Victoria, British Columbia.

R. W. Mayhew, President.  
Logan Mayhew, Manag. Dir.  
Purch. Agt.  
M. Thom, Supt.  
A. J. Saunders, Pitt. Eng.  
(Mech.)  
Capacity. Pulp: 10 tons Me-  
chanical. Paper: 25 tons  
Board, 18 tons other.

### SORG PULP CO., LTD.

General Office: Vancouver, B. C.

Mill: Port Mellon, British Co-  
lumbia.

J. A. Aull, Pres.  
D. Driscoll, Exec. Vice-Pres.  
Herve D. Humphrys, Gen. Mgr.  
R. H. Tupper, Legal Repr. in  
B. C.  
Trig Iverson, Gen. Supt.  
Capacity. Pulp: 120 tons Un-  
bleached Sulphate.

### SOUNDVIEW PULP CO.

Everett, Wash.

Walter A. Starr, Chair. Bd.  
Dir.  
U. M. Dickey, Pres.  
H. H. Fair, Vice-Pres. &  
Treas.  
L. S. Burdon, Gen. Mgr.  
G. J. Armbruster, Gen. Supt.  
S. A. Salmonson, Asst. Supt.  
H. L. Barbas, Secy.  
Miss E. Johnson, Purch. Agt.  
N. W. Coster, Tech. Dir.  
John Mook, Master Mech.

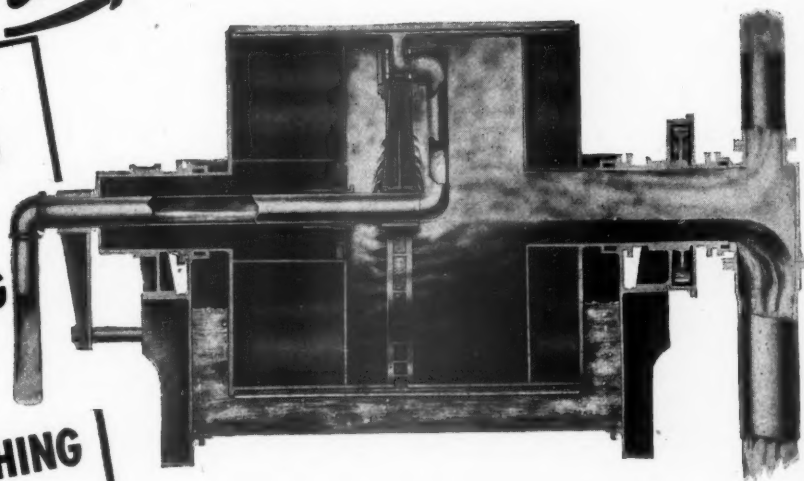


# OLIVER *Ringvalve* WASHER

**1**  
**KRAFT WASHING**

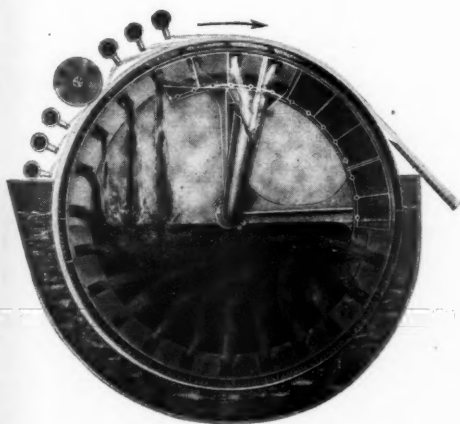
**2**  
**BLEACH WASHING**  
(rubber covered)

**3**  
**SULPHITE WASHING**  
(stainless steel)



Place your own investment and operating values on these advantages, all superior with the OLIVER Ringvalve WASHER.

- 1 — one unit can do two-stage washing
- 2 — two units can do the work of three single stage washers plus re-washer
- 3 — because of these combined operations, pulp is handled less frequently; less pumping and accessory equipment required
- 4 — center drainage quickly frees section of liquid forming uniform sheet
- 5 — shallow drainage channels result in only minimum trapping of air as section passes down into the vat
- 6 — this small amount of air in filtrate makes it practicable to use a barometric leg



**OLIVER  
UNITED FILTERS  
INC.**



Many mills have been sold on the Oliver Ringvalve Washer. It has won one adherent after another by its superior work.

New York 18, N. Y.  
33 West 42nd Street

San Francisco 11  
California

Chicago 1, Ill.  
221 N. LaSalle Street

Western Sales Division  
Oakland 1, Calif.  
2900 Glascock Street

E. Long Ltd., Orillia, Ont.

Factories: Oakland, Calif. — Hazleton, Pa. — Orillia, Ont., Canada — Melbourne, Australia



H. E. Miller, Plant Eng.  
J. J. Shirley, Traffic Mgr.  
Capacity. 30 tons Asbestos  
Paper.

### LONGVIEW FIBRE COMPANY

Longview, Washington

H. L. Wollenberg, Pres.  
D. C. Everest, Vice-Pres.  
C. J. Schoo, Vice-Pres.  
R. S. Wertheimer, Vice-Pres.,  
Res. Mgr.  
L. C. Feabody, Secy., Treas.,  
Asst. to Pres.  
D. H. Cairns, Mgr. Paper  
Sales.  
Tony Siebers, Paper Mill Supt.  
William E. Clarke, Asst.  
Paper Mill Supt.  
R. G. Armstrong, Asst. Secy.  
C. R. Adams, Asst. Treas.  
Carl Fahlstrom, Asst. Res.  
Mgr.  
C. J. Bastedo, Sales Mgr.  
H. Hoehne, Pulp Mill Supt.  
M. V. Roley, Bag Mill Supt.  
W. D. Rigg, Chief Eng.  
J. W. Schuh, Chief Elec. Eng.  
Mills Price, Fin. Room &  
Shipping Supervisor.  
Dave Watson, Purch. Agt.  
J. A. Wilcox, Process. Eng.  
C. J. Page, Box Pit Supt.  
Joe Fotheringill, Safety Eng.  
Boyd Wickwire, Personnel  
Mgr.  
C. W. Ragadale, Supt. Con-  
struction.  
H. W. Dauterman, Paper Mill  
Tour Boss.  
H. J. Drew, Paper Mill Tour  
Boss.  
C. J. Dupras, Paper Mill Tour  
Boss.  
Roy McCallum, Paper Mill  
Tour Boss.  
W. A. Wenzel, Pulp Mill Tour  
Boss.  
J. G. Carson, Pulp Mill Tour  
Boss.  
J. Peake, Pulp Mill Tour Boss.  
Gebhart Becker, Pipefitter  
Foreman.  
C. G. Ditter, Chief Clk., Bag  
Plant.  
F. A. Horn, Master Mechanic  
Virgil M. Sutherland, Chief  
Instr. Man.  
Capacity. Pulp: 100 tons Me-  
chanical, 350 tons Unbleached  
Sulphate. Paper: 210 tons  
Sulphates, 230 tons Board.

### OREGON PULP & PAPER CO.

Salem, Oregon

F. W. Leadbetter, Pres.  
Theodore Osmund, Vice-Pres.;  
Pur. Agt.  
Nils G. Teren, Vice-Pres.,  
Gen. Mgr.  
A. M. Cronin, Secy.  
W. S. Walton, Treas.  
K. W. Heinlein, Res. Mgr.  
J. D. Kaster, Jr., Paper Mill  
Supt.  
Edward A. Weber, Sulphite  
Supt.  
O. P. Wegner, Master Mech.  
Capacity. Pulp: 20 tons Un-  
bleached Sulphite, 110 tons  
Bleached Sulphite. Paper: 120  
tons Sulphates.

### PACIFIC PAPER BOARD COMPANY

Longview, Washington

E. E. Flood, Pres.  
Capt. Everett E. Flood, Vice-  
Pres.  
T. J. Kennedy, Sec. & Sales  
Mgr.  
E. W. Truman, Asst. Sec.  
F. D. Geiger, Asst. Sec.  
Henry Armstrong, Purch. Agt.  
Ralph Mason, Chief Eng.  
William Ball, Master Mech.  
Arthur Arvedson, Asst. Master  
Mech.  
Kenneth Gordon, Prod. Mgr.  
James Orgeneal, Chief Elec.  
H. F. Arvedson, Bldg. Supt.  
Albin Sonderens, Supt. Con-  
verting.  
H. H. James, Personnel Offi-  
cer.  
Arnold Maahs, Paper Mill  
Tour Boss.  
John Baum, Mill Supt.  
Capacity. Pulp: 30 tons Me-  
chanical. Paper: 80 tons  
Board.

### PACIFIC COAST PAPER MILLS OF WASH., INC.

Bellingham, Washington  
J. J. Herb, Pres.

F. J. Herb, Vice-Pres. & Gen.  
Mgr.  
V. A. Hughes, Secy.  
William McCuan, Treas.  
F. J. Onkels, Plant Supt.,  
Purch. Agt.  
George Johnstone, Master Me-  
chanic.  
William Dynes, Finish. Room  
Supt.  
F. J. Block, Shppg. Foreman.  
Capacity. Paper: 22 tons Sul-  
phites.

### PACIFIC COAST PULP & PAPER CO.

Richvale, California

D. M. Thomson, Pres.  
Capacity. Pulp: 5 tons Soda.

### THE PARAFFINE COMPANIES, INC.

Emeryville, California

R. S. Shainwald, Ch. Bd.  
W. H. Lowe, Pres.  
R. H. Shainwald, Exec. Vice-  
Pres.  
C. C. Gibson, Vice-Pres. &  
Treas.  
R. Hilliard, Vice-Pres. in Chg.  
Sales.  
F. M. Prince, Vice-Pres. in  
Chg. Export.  
F. M. Tussing, Mgr. of Mfg.  
A. W. Brown, Secy.  
R. E. Dexter, Asst. Secy.  
Jean Holmes, Asst. Treas.  
J. H. Varley, Mill Supt.  
A. H. Silverstone, Purch. Agt.  
G. T. Kurtz, Chief Chemist.  
S. A. Cohen, Dir. Research  
& Development.  
Fred W. Rea, Mgr., Public &  
Ind. Relations Depts.  
Fred Stoltz, Supt. Paint.  
W. B. Stitt, Mach. Supt.  
W. A. Magee, Mgr. Prod. Con-  
trol.  
I. Hovgaard, Asst. Mgr. Mfg.  
L. Seifert, Personnel Dir.  
Capacity. 120 tons Roofing and  
Felts, Floor Covering.

### POWELL RIVER CO., LTD.

Headquarters Office: 1204 Stan-  
dard Bank Bldg., Vancouver,  
B. C.

Mill Office: Powell River, B. C.

S. D. Brooks, Ch. Bd. Dir.  
Harold S. Foley, Pres.  
R. Bell-Irving, Vice-Pres.  
G. F. Laing, Vice-Pres.  
J. H. Lawson, Secy.  
J. C. Hill Asst. Secy.  
J. N. Turvey, Comptroller.  
D. A. Evans, Res. Mgr.  
Russell M. Cooper, Gen. Supt.  
R. A. Baker, Purch. Agt.  
R. C. Bledsoe, Chief Chem.  
Harold Moorhead, Res.  
Engineer  
F. J. Hamilton, Sulphite Mill  
Supt.  
W. E. MacGillivray, Ground-  
wood Supt.  
F. R. Riley, Paper Mill Supt.  
J. F. Flett, Employment Supt.  
A. H. Robertson, Plant Eng.  
E. G. Craigie, Elec. Supt.  
T. A. Wyborn, Steam Plant  
Supt.  
E. Pirie, Safety Insp.  
J. McIntyre, Public Relations.  
I. H. Andrews, Control Supt.  
O. Crawford, Traffic Mgr.  
Angus Armour, Order &  
Shppg. Dept. Head.  
H. B. Urquhart, Asst. Ground-  
wood Mill Supt.  
W. A. Snyder, Asst. Paper  
Mill Supt.  
N. C. Fraser, Finish. Room  
Supt.  
A. W. DeLand, Mgr. Forest  
Dept.  
Daily Capacity. Newsprint pa-  
per: 720 tons. Mechanical  
Pulp: 656 tons; Chemical  
Pulp: 155 tons. Strong Un-  
bleached Sulphite Pulp for  
sale: 130 tons.

### PUGET SOUND PULP & TIMBER CO.

Bellingham, Washington

Fred G. Stevenot, Pres. & Dir.  
Lawson P. Turcotte, Executive  
Vice-Pres. & Director.

Harry M. Robbins, Vice-Pres.

and Director.  
Robert H. Evans, Legal Coun-  
sel & Dir.  
J. L. Rucker, Dir.  
Dr. William C. Keyes, Dir.  
Edward Anderson, Dir.  
Ralph M. Roberg, Sales Mgr.,  
and Vice-Pres.

Harry A. Blaser, Secretary.  
William Sealy, Treasurer.  
Don W. Smith, Purch. Agt.  
Erik Ekholm, Gen. Supt.  
Carl V. Sahlin, Mgr. Logging  
Dept.

Eric Ericsson, Technical Dir.  
H. D. O'Leary, Resident Eng.  
(in U. S. Navy)

H. C. Haner, Acting Plant  
Engineer.

Frank Brown, Master Mech.  
Russell E. de Lopez, Traffic  
Mgr.

Fred Gilmore, Asst. Supt.  
Sidney Collier, Asst. Supt.  
Glen Crout, Shppg. Clerk. (in  
U. S. Army)

J. L. Smith, Acting Shipping  
Clerk.

Capacity. Pulp: 460 tons Un-  
bleached Sulphite.

### RAYONIER INCORPORATED

Head Office: 122 East 42nd St.  
New York 17, New York

Mills: Hoquiam, Port Angeles  
and Shelton, Washington;  
Fernandina, Florida.

Edward Bartch, President.  
Edward M. Mills, Chairman  
Executive Committee.

Charles H. Conrad, Sec.-Treas.  
L. G. Wilson, Comptroller.

Dr. R. M. Pickens, Director  
of Sales.

H. E. Kerry, Traffic Mgr.  
Shelton, Washington: Central  
Laboratory, Dr. A. N. Par-  
rett.

Seattle Office: 719 White Bldg.,  
Seattle 1, Washington

M. B. Houston, Vice-President  
and Pacific Northwest Rep-  
resentative.

J. D. Sullivan, Purch. Agt.  
Woodlands Division—  
M. N. Deggeler, Manager.

### DIVISIONS

#### GRAYS HARBOR DIVISION

Hoquiam, Washington

W. S. Lucey, Res. Mgr.  
Lynn Tracy, Asst. Mgr.  
John Bagwill, Northwest Mills  
Labor Relations Mgr.

Larry Hay, Office Mgr.  
O. R. McDonald, Pulp Mach.  
Room Supt.

A. Gustin, Sulphite Mill Supt.  
C. H. Woodford, Woodroom  
Supt.

L. R. Wood, Plant Eng.  
W. G. Clayton, Steam Plant  
Eng.

A. S. Boag, Chief Elect.  
L. G. Pfeiffer, Pulp Finish.  
Supt.

O. N. Sangder, Chief Chem.  
Olavi Aho, Asst. Chief Chem.  
G. W. McKay, Personnel &  
Safety Suprv.

Capacity. Pulp: 300 tons  
Bleached Sulphite.

#### PORT ANGELES DIVISION

Port Angeles, Wash.

W. E. Breitenbach, Res. Mgr.  
H. A. Sprague, Asst. Res.  
Mgr.

C. T. Mullady, Gen. Supt.  
J. G. Hardy, Pulp Mill Supt.  
S. W. Grimes, Personnel &  
Safety Suprv.

Otto Frame, Pulp Mach. Rm.  
Supt.

G. L. Johnston, Wood Room &  
Chipping Plant Supt.

Meder Johnson, Res. Eng.  
Fred Dangerfield, Mstr. Mech.  
Pat Cannon, Steam House  
Supt.

Floyd Gossard, Pulp Finish.  
and Warehouse Supt.  
H. Springer, Chief Elect.

H. T. Fretz, Chief Chem.  
Henry V. Charnell, Jr., Asst.  
Chief Chem.

Myron A. Scott, Office Mgr.  
Capacity. Pulp: 260 tons  
Bleached Sulphite.

#### SHELTON DIVISION

Shelton, Wash. (Mill Idle)

George Cropper, Res. Mgr.  
F. R. Pearson, Asst. Mgr.  
J. G. E. Ellis, Plant Eng.

W. F. McCann, Master Mech.  
W. W. Kulrich, Chief Elect.

G. C. Eck, Asst. Chief Chem.  
Capacity. Pulp: 200 tons  
Bleached Sulphite.

### ST. HELENS PULP & PAPER CO.

St. Helens, Oregon

Max Oberdorfer, Pres., Gen.  
Mgr.

Dr. Robert H. Ellis, Vice-  
Pres.

Max Oberdorfer, Jr., Plant  
Engineer.

Irving T. Rau, Sec., Treas.,  
Purch. Agt.

Merrill Norwood, Night Supt.  
Sverre Strom, Mech. Engr.

R. E. Drane, Chief Chem.  
A. E. Weber, Asst. Off. Mgr.  
L. V. Radke, Asst. Chem.

C. W. Sherman, Mgr. Bag  
Mill, Mgr. Converting Dept.  
C. V. Smith, Chief Elect.

H. D. Johnston, Dir. Person-  
nel.

J. Zaniker, Fin. Room Supt.,  
Shppg. Supt.

H. R. O'Dell, Maint. Supt.  
F. Monahan, Paper Mill Supt.  
Ray Brown, Pulp Mill Supt.

Chester Gilliland, Safety Eng.  
H. C. Carswell, Timber Mgr.  
J. A. Moore, Traffic Mgr.

Capacity. Pulp: 180 tons Un-  
bleached Sulphate. Paper: 150  
tons Sulphates.

### ST. REGIS PAPER COMPANY

#### KRAFT PULP DIVISION

Headquarters Office: 230 Park  
Ave. New York, N. Y.

Mill Office: Tacoma, Wash.  
Roy K. Ferguson, Pres.

Walter DeLong, Vice-Pres. &  
Mgr.

Herman Gevers, Consultant.  
A. C. McCorry, Supt.

James Ruck, Supt.  
E. J. Hayes, Office Mgr.

J. Lamb, Purch. Agt.  
Ivan Gingrich, Chief Acct.

Paul Holmes, Chief Eng.  
W. J. Thomas, Chief Elect.

Allen M. Cadegan, Chief  
Chemist.

Bert Doolittle, Sawmill Supt.  
Charles Munt, Master Mech.

Wayne Oja, Asst. Engineer.  
J. A. Reeder, Traffic Mgr.

W. H. Davis, Log Buyer.  
L. O. Reisinger, Personnel  
Mgr.

Capacity. Pulp: 325 tons Un-  
bleached Sulphate Pulp.

Bleaching Capacity, 250 tons

### SIDNEY ROOFING & PAPER CO., LTD.

Victoria, British Columbia.

R. W. Mayhew, President.

Logan Mayhew, Manag. Dir.,  
Purch. Agt.

M. Thom, Supt.  
A. J. Saunders, Pit. Eng.  
(Mech.)

Capacity. Pulp: 10 tons Me-  
chanical. Paper: 35 tons  
Board, 18 tons other.

### SORG PULP CO., LTD.

General Office: Vancouver, B. C.  
Mill: Port Mellon, British Co-  
lumbia.

J. A. Aull, Pres.

D. Driscoll, Exec. Vice-Pres.  
Herve D. Humphrys, Gen. Mgr.

R. H. Tupper, Legal Repr. in  
B. C.

Trig Iverson, Gen. Supt.

Capacity. Pulp: 120 tons Un-  
bleached Sulphate.

### SOUNDVIEW PULP CO.

Everett, Wash.

Walter A. Starr, Chair. Bd.  
Dir.

U. M. Dickey, Pres.  
H. H. Fair, Vice-Pres. &  
Treas.

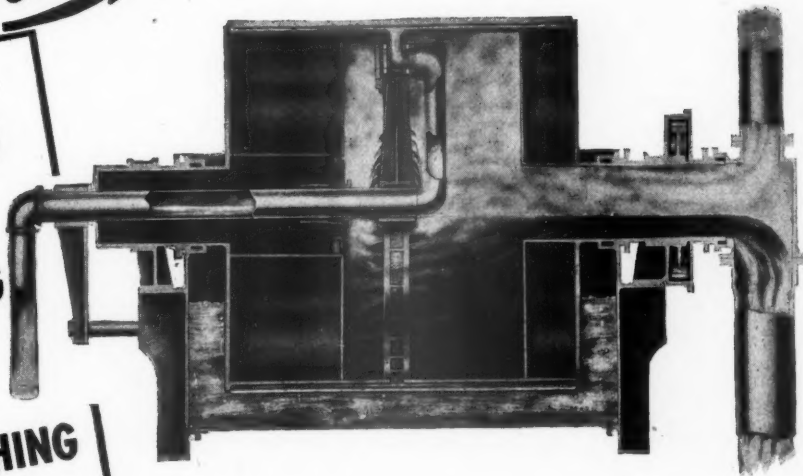
L. S. Burdon, Gen. Mgr.  
G. J. Armbruster, Gen. Supt.

S. A. Salmonson, Asst. Supt.  
H. L. Barbasch, Secy.

Miss E. Johnson, Purch. Agt.  
N. W. Coater, Tech. Dir.  
John Mook, Master Mech.

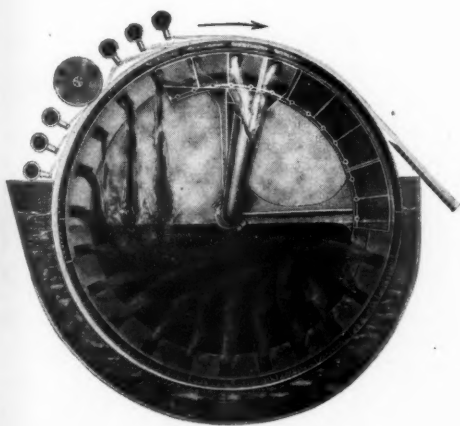


# OLIVER *Ringvalve* WASHER



Place your own investment and operating values on these advantages, all superior with the OLIVER Ringvalve WASHER.

- 1 — one unit can do two-stage washing
- 2 — two units can do the work of three single stage washers plus re-washer
- 3 — because of these combined operations, pulp is handled less frequently; less pumping and accessory equipment required
- 4 — center drainage quickly frees section of liquid forming uniform sheet
- 5 — shallow drainage channels result in only minimum trapping of air as section passes down into the vat
- 6 — this small amount of air in filtrate makes it practicable to use a barometric leg



Many mills have been sold on the Oliver Ringvalve Washer. It has won one adherent after another by its superior work.

New York 18, N. Y.  
33 West 42nd Street

San Francisco 11  
California

Chicago 1, Ill.  
221 N. LaSalle Street

Western Sales Division  
Oakland 1, Calif.  
2900 Glascock Street

E. Long Ltd., Orillia, Ont.

Factories: Oakland, Calif. — Hazleton, Pa. — Orillia, Ont., Canada — Melbourne, Australia



J. H. McCarthy, Res. Eng.  
Carl A. Ramstad, Chg. Instrumentation.

Capacity. Pulp: 550 tons  
Bleached Sulphite.

### SPAULDING PULP & PAPER COMPANY

Box 70.

Newberg, Ore.

J. C. Compton, Pres., Gen. Mgr.

E. Fred Emery, Vice-Pres.

O. M. Allison, Sec., Treas.

J. B. Wilt, Res. Mgr.

Ralph Reid, Chief Chem., & Mill Supt.

H. M. Washbond, Auditor,  
Capacity. Pulp: 80 tons Unbleached Sulphite.

### UNITED STATES GYPSUM COMPANY

Southgate, (Los Angeles) Calif.

E. W. Odenwaldt, Mill Mgr.

G. Biggs, Mgr. Roofing Paper Dept.

J. E. Hartford, Paper Machine Supt.

Capacity. Paper: 70 tons Board,  
50 tons other.

### VOLNEY FELT MILLS

Compton Calif.

Lloyd A. Fry, Pres.

P. K. Gaffigan, Vice-Pres.

J. F. Fischer, Treas.

O. A. Bigler, Mgr.

A. H. Gardenhire, Purch. Agt.

J. Coleman, Supt.

Capacity: 30 tons Felts.

### WEST COAST PAPER BOARD MILLS, INC.

Los Angeles, California.

W. H. Kewell, Director.

Capacity. Paper: 20 tons Chip Board.

### WESTMINSTER PAPER COMPANY, LTD.

New Westminster, B. C.

J. J. Herb, Pres.

E. M. Herb, Vice-Pres., Gen. Mgr.

R. C. Onkels, Supt.

J. Ashby, Tech. Director.

R. Ross, Purch. Agt.

Cliff Radcliff, Sales Mgr.

Capacity. Paper: 35 tons Sulphites.

### WEYERHAEUSER TIMBER CO.

PULP DIVISION

Longview, Washington.

R. B. Wolf, Mgr.

Mill No. 1, Longview, Wash. (Cowlitz County)

W. N. Kelly, Mgr.

E. P. Wood, Tech. Dir.

M. L. Edwards, Plant Eng.

P. F. Miescke, Office Mgr.

C. L. McPhail, Purch. Agt.

Capacity. Pulp: 250 tons Bleached Sulphite.

Mill No. 2, Everett, Wash. (Snohomish County)

R. J. LeRoux, Mgr.

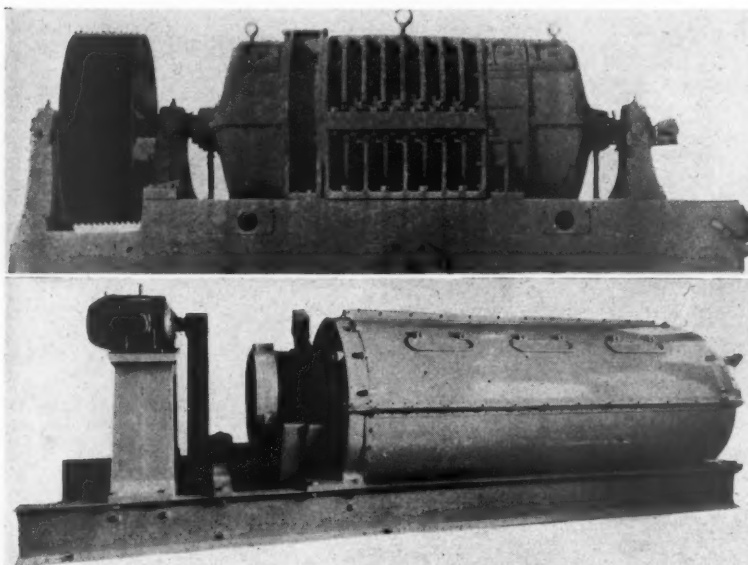
H. W. Bialkowski, Tech. Dir.

G. F. Alcorn, Plant Eng.

O. E. Fox, Office Mgr.

R. M. Inkster, Purch. Agt.

Capacity. Pulp: 280 tons Unbleached Sulphite.



A HAUG REFINER UNIT saves wood after chipping operations. Above is the Haug Refiner Size 3 and below is the Haug Drainer Size 3. Both machines, approximately the same overall length, are used in the operation as described in the article on wood utilization.

### Wood Utilization

(Continued from Page 33)

this large unit is about 150 h.p. which is a little less than 4 h.p. per ton of refined stock.

A Haug Refining Unit consists usually of 2 machines, the Drainer (a special thickener) and the Refiner.

The Drainer was developed to control the important function which consistency and even feed plays in refining. This machine takes the screenings from the mixing chest and increases the consistency to the amount suitable for the particular degree of refining desired, helps to even out fluctuations in the rate of feed, and furnishes the stock to the refiner at a regular and constant rate.

The Drainer consists of a rotating, perforated drum in the first section of which sufficient water drains off from the screenings to permit a pressing operation in the second section which is controllable with regard to the amount of water removed.

The Refiner consists of a stationary shell in which a number of rolls work over the stock with a pressure dependent on the speed of the machine. This principle

reduces the material to fiber without cutting edges and makes it possible to influence the degree of refining by simply changing the refiner speed.

The late D. E. Dupuis, manager of Ste. Anne Paper Co., Ltd., Beaufre, Que., a member of the Dupuis family which has been active for years in the Port Angeles, Wash., industry, commented recently on the Haug refiner as follows:

"We have been refining all our ground-wood screenings as well as all of our sulphite tailings through two of our 6 roll refiners producing as high as 14 tons per day at 7 h.p. per ton and it has worked perfectly with a very low h.p. per ton and excellent stock. We are able to reject a little heavier from both screening systems, getting cleaner stock from the tailing screens and converting the screenings into a grade of pulp which compares well with the best we make. In fact, I believe it is much better than our regular stock due to being fine and short it acts as a good filler and gives a well closed sheet."

### Savings In the Woods

● One of the most interesting experiments in wood utilization has been the Comox Logging & Railway Co.-Powell

River Co. cooperative enterprise in recovering small logs left on logged-off lands at Ladysmith, B. C., on Vancouver Island. This has been going on since last June and there have been frequent articles in this magazine in the past year reporting on its progress.

At the Pacific Logging Congress in Seattle in January a round table discussion was held on the subject and the general conclusion was that loggers and manufacturers should get their heads together and develop light, cheap equipment to pre-log and re-log (taking out small and uncommonly used wood before and after logging of big timber) in the west. It is uneconomical to do so now under the logging pay scale and with expensive equipment and high labor costs in western operations.

Powell River and Comox have developed home-made equipment in their enterprise. What they call a "peanut-picker"—a 2½ ton truck with a light power unit, a 28-foot A-frame and light lines—was made for yarding the pulpwood. This new type of logging also requires new types of truck equipment and towing equipment. One idea is to bundle the wood on trucks and in Davis rafts. Or possibly to cut it in short lengths in the woods.

Prof. Bror L. Grondal, University of Washington college of forestry, has devised a forest waste reduction machine which could be taken into the woods and there cut up and bark the small wood and waste wood in preparation for the mill (see PACIFIC PULP & PAPER INDUSTRY, October, 1943, p. 29).

It is estimated that smallwood operations on Vancouver Island will increase timber yield per acre as much as 30 per cent.

### B. C. Plastics Problems

Chief obstacle to development of a wood plastics industry in British Columbia now is markets, according to Dr. R. H. Clarke, of the science faculty, University of British Columbia, who addressed a special committee of the Vancouver, B. C., city council. "We can do anything here that they can do elsewhere, except find a ready sale for our products," he said.

"If we develop a market in the Orient after the war we will find that we have to transport some of our materials from the east, thereby paying twice—eastern manufacturers and the transport companies.

"We can make rayon here, but to do so we must have a form of slave labor."



# HAWLEY PULP & PAPER COMPANY

OREGON CITY, OREGON

**Sales Offices:** Fourteenth & Harrison Sts.,  
San Francisco, California

630 American Bank Bldg., Portland, Oregon  
2470 Enterprise Street, Los Angeles, California

*Manufacturers*  
OF  
**SULPHITE**  
AND  
**GROUNDWOOD**  
*Papers*



# The Pacific Coast Industry Offers a Large Variety of Products

As the market grows the variety of pulps, papers, paperboards and converted products manufactured in the region continue to expand—This list is presented as a service to the industry and to its customers.

## A

### THE ADHESIVE PRODUCTS INC.

San Francisco  
Products

Gummed Sealing Tape  
Bookbinders' Gummed Hollands  
Stay Tape  
Veneer Tapes  
Corrugated Box Tapes  
Industrial Adhesives

### ANGELUS PAPER BOX CO.

Los Angeles  
Products

Corrugated Paper Boxes  
Folding and Set-Up Boxes

### ANGELUS PAPER EXCELSIOR PRODUCTS CO.

Los Angeles  
Products

Adding Machine Paper  
Cash Register Paper  
Tabulator and Teletype Paper  
Addressing and Listing Papers  
Embossed Packing  
Serpentine  
Other Roll Paper Specialties  
Paper and Wood Excelsior  
Paper and Wood Furniture Pads  
Embossed Chip Board  
Pipe and Tire Wraps  
Paper Converting

## B

### BARTRAM PAPER PRODUCTS CO., LTD.

Vancouver, B. C.  
Products

Bag Specialties  
Candy Bags  
Cellophane Bags  
Coffee Bags  
Garment Containers  
Glassine Bags  
Greaseproof Specialties  
Grocery Bags  
Laundry Bags  
Millinery Bags  
Shopping Bags  
Notion Bags

### BEMIS BRO. BAG CO.

Seattle, Wash. and San Francisco, Calif.  
Products

Burlap Bags  
Cotton Bags  
"Visinet" and Leononet" Open Mesh  
Bags

"Deltaseal" and "Flexi-carton" Small  
Paper Bags  
"Arksafe" Crinkled Paper Liners  
Pasted and Sewn Multiwall Paper Bags  
Twine and Thread

### BEMIS PAPER BAG COMPANY

Plants: St. Helens, Ore.; Wilmington,  
Calif.

Sales Offices: San Francisco, Salt Lake  
City, Denver, Boise

### J. E. BERKHEIMER MFG. CO.

Tacoma, Wash.  
Products

Asphalt  
Saturating of Felts and Building Paper  
For Sale: Deadening Felt  
Roof Coatings  
Composition Shingles  
Brick Siding

### BENJ. C. BETNER CO. OF CALI- FORNIA

Factories: Devon, Pennsylvania; Rich-  
mond, Virginia; Los Angeles, Calif.;  
Oklahoma City, Okla.

Products

Manufacturers of Protective Bags  
Lamofilm (Reg. U. S. Pat. Off.)  
Thermoseal (Reg. U. S. Pat. Off.)  
Packages

### BRITISH COLUMBIA PULP & PAPER CO., LTD.

Office, Vancouver, B. C.  
Mills, Port Alice and Woodfibre, B. C.  
Products

Bleached Sulphite Pulps for Rayon and  
High Grades Papers

## C

### CALIFORNIA CONTAINER CORP.

Emeryville, Calif.  
Los Angeles, Calif.

(Western Container Company)

Seattle, Wash.  
Portland, Oregon

Products

Corrugated Fibre Containers for All  
Commodities—

### CALIFORNIA-OREGON PAPER MILLS

Division of Columbia River Paper Mills  
Los Angeles, Calif.

Products

Wrappings—

Tissues—  
Sulphite

Fruit Wraps—  
Oiled, plain and printed

Waxing Papers—  
Plain and printed  
Vegetable Parchment  
Plain and printed  
Specialties

### CAPITAL ENVELOPE CO., LTD.

Los Angeles  
Products

Envelopes, commercial and special  
Glassine Bags, plain and printed

### CARPENTER ENVELOPE COMPANY

Division of Carpenter Paper Co.

Los Angeles  
Manufacturers

Products

Complete line of Envelopes

### CENTRAL FIBRE PRODUCTS CO. (Formerly Colorado Paper Products Co.)

Denver, Colo.  
Products

Manila Vat-lined Box Boards  
News Vat-lined  
Test Liner  
Test Chip  
Pasted Chip  
Container Stocks  
White Blanks  
Colored Folding Box Boards  
Set Up Box Boards  
Plain Chip, Rolls and Sheets

### CERTAIN-TEED PRODUCTS CORP.

Richmond, Calif.  
Products

Roofings—

Mineral Surfaced Shingles  
Mineral Surfaced Roll Roofings  
Smooth Surfaced Roll Roofings

Felts and Building Papers—

Asphalt felt, 15 and 30 lb.  
Asphalt sheathing

Tuftite Kraft Sheathing  
Blue pasterboard, 30 lb.  
Deadening felt, ¼ and 1 lb.  
Sheathing paper, 20 and 30 lb.  
Unsaturated felt and building pa-  
pers  
Brands

Shingles—

12" Thick Butt  
Hexagonal  
Universal  
Individuals  
Certain-teed, Beaver Vulcanite

Roll Roofing—

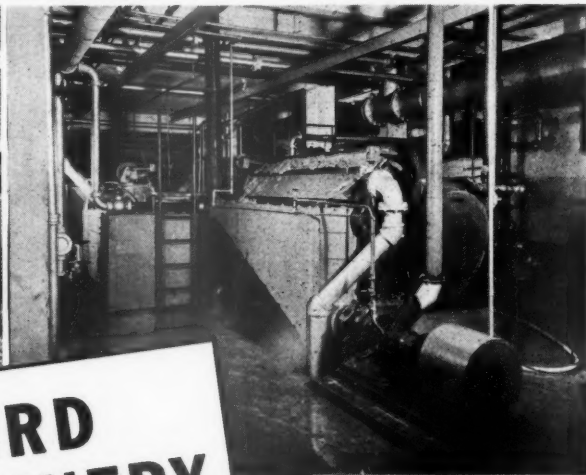
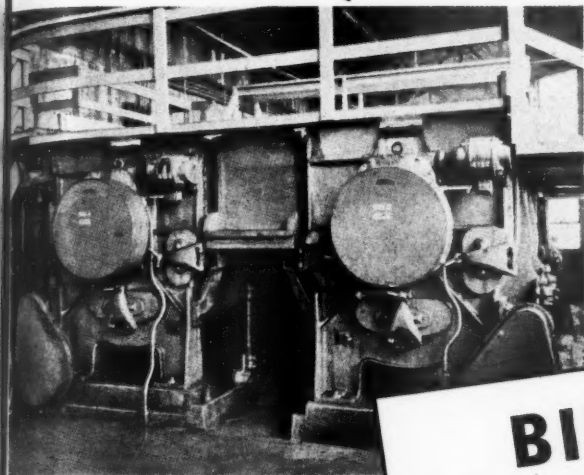
Split Sheet, Super Certain-teed  
Certain-teed, Guard  
Certain-teed Structural Insulation  
Board

Certain-teed Hard Board  
Densewood Products  
Genuine Beaver Board  
Bestwall Plaster Board

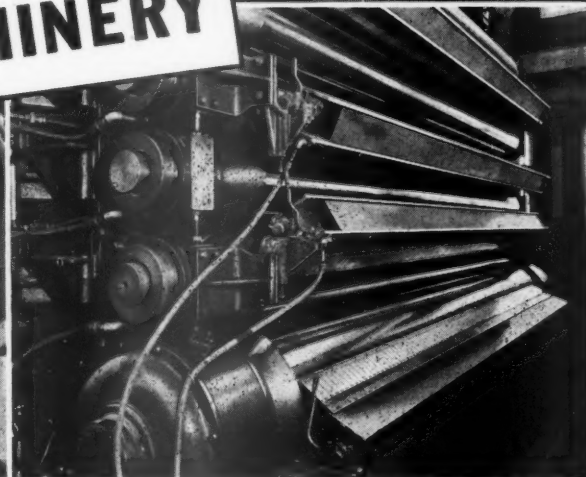
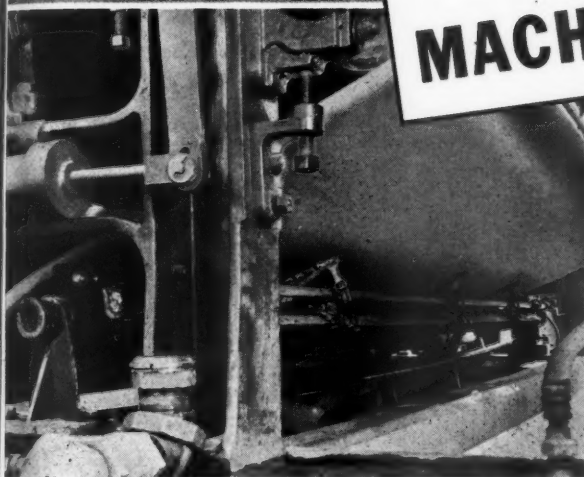


Two of four *Bird Screens* in a Washington board mill.

One of three *Bird Save-Alls* that prevent waste of precious fibres in a Northwestern mill.



## BIRD MACHINERY



This *Vickers Felt Conditioner* keeps the felt doing its best work every minute it's on the job in a Pacific Coast mill.

These *Vickers Hi-Flex Doctors* operate continuously on every calender roll in a mill in the Southwest. They keep the paper free of calender marks and assure maximum production.

### *Is Helping The Pacific Paper Industry To Keep On Doing Its Best*

**BIRD SCREENS** are helping almost every papermaker in the West to maintain continuous, high speed production of uniformly clean paper in spite of increasingly dirty stock.

**BIRD SAVE-ALLS** are helping to conserve every pound of critically needed stock—recovering it from white water automatically and returning both fibre and water for immediate re-use at lowest net cost.

**VICKERY FELT CONDITIONERS** are helping to keep paper machines on the job without mid-week shutdowns for felt wash-ups—helping to maintain paper quality and reduce drying cost by keeping press felts continuously clean and absorbed.

**VICKERY DOCTORS** are helping to keep every papermaking roll in shape to do its best work all the time. Rolls last longer, require less attention, less frequent re-grinding.

*Get in touch with us any time we can help you  
to keep your Bird Machinery doing its best.*

**BIRD MACHINE COMPANY**  
SOUTH WALPOLE • MASSACHUSETTS



**CHASE BAG CO.**

Portland, Ore.

## Products

Burlap Bags  
Cotton Bags  
"Saxolin" Open Mesh Paper Bags  
Crinkled Paper Liners for Bags and Barrels.

**CLARKSBURG PAPER CO.**

Oakland, Calif.

## Products

Boxes—Shipping, Corugated, Fibre

**COAST ENVELOPE AND LEATHER PRODUCTS CO.**

Los Angeles

## Products

Envelopes  
Book Covers  
Leather Goods

**COLUMBIA RIVER PAPER MILLS**

Vancouver, Wash.

## Products

Fruit Wraps—  
Citrus and deciduous, oiled, plain or printed  
Bleached and Semi-Bleached Wrapping tissues  
White and Colored Napkin Tissue  
Bleached Specialties  
Sulphite Bonds  
Envelope  
Writings

**CONTINENTAL BAG SPECIALTIES**

CORP. and ONEIDA PAPER PRODUCTS, INC.

Los Angeles

## Products

Cellophane Bags—  
Flat  
Square  
Satchel Bottom (FUL-LOK)

Cellophane Envelopes—  
Coffee Bags, Flavo Fresh

Glassine Bags—

Flat  
Square

Glassine Envelopes, Open End  
Ice Cream Bags

Window Bags—

Self-Opening with full-length (strip) window

Self-Opening with die-cut window

Flat &amp; Square—

Full-face window  
Partial face (strip) window

Waxed Bags—

One Side

Two Sides

Pre-printed

Catalog Envelopes, Open End

Kraft Bags, Miscellaneous except Grocery

Flat

Square

Flavo-Fresh Sandwich Bags

Kleenway All-Purpose Bags

(For consumer re-sale)

**COOS BAY PULP CORPORATION**

Empire, Oregon

Anacortes, Wash.

(Wholly owned subsidiaries of the Scott Paper Co., Chester, Pa.)

## Products

Unbleached Sulphite Pulp

**CORRUGATED KRAFT**

CONTAINERS, INC.

Oakland, Calif.

## Products

Corrugated Shipping Cases  
Solid Fibre Shipping Cases

**CROWN MATCH COMPANY**

Los Angeles

## Products

Paper Book Matches

**CROWN WILLAMETTE PAPER COMPANY**

Division Crown Zellerbach Corporation

Camas, Wash.; West Linn, Ore.;  
Lebanon, Ore.

## Products

Towels—

Alfibre—Junior and Midget (folded)

Aristocrat, 2-ply (folded)

Kraft spun—Junior and Midget (folded)

Radiant—(Roll)

Milady Household Roll Towels

Bakers Bags—

Crown Bread Bags

Bleached Sulphite Wrapping—

Crown Snowfibre, M. F.

Butcher Papers—

Crown Alpine Meat Wrap—S. F.

White Full Bleached

Crown Meat Wrap—S. F. Natural

Crest Meat Wrap—S. F. or W. F.

Natural

Crest Butcher Fibre—W. F. Mottled, Natural

Crest Moistite Butcher—Dry Finish (Natural), Pink, White

Crest Veribest Butcher—S. F. Pink

Citrus Tissues — Plain and Printed

Crown Citrus

Colored and Striped M. G. Sulphite

Wrapping—

Crown Damask Alfibre—M. G. wide stripe

Commercial Wrapping Tissue—

Crestex No. 1½ Tissue—Unbleached White

Converting Kraft—

Crown Grocery Bag Paper

Crown Envelope Kraft

Crown Gumming Kraft

Crown Asphalting Kraft

Crown Waxing Kraft

Envelope Manila—

Crown Envelope Manila

Excelsior Paper—

Crown Tissue Excelsior

Fruit Papers —Plain and Printed—

Crown Alfibre Fruit Wrap

Crown Oil Fruit Wrap

Crown Copperized Alfibre Fruit Wrap

Crown Tomato Wraps—M. F.—

White

Crown Cantaloupe Wrap—Treated

Manila

Grocery Bags—

Crown Kraft—S. O.

Otter—S. O.

Gummed Tape—

Crown Flash Tite Sealing Tape

Kraft Wrapping—

Crown Kraft—Natural Brown, M. F. Plain

Crown Damask Kraft — Natural Brown, M. G. wide stripe

Manifolding Paper—

Crown Manifolding Tissue

Mill Wrappings—

Crown Mill Wrapper

Napkins—

Fixture and Special-fold Napkins  
Package Napkins

Newsprint—

Standard News (rolls)

Commander News (sheets)

Crown Printers Roll News

Crown Printers Sheet News

Crown Flat-bed Sheet News

Crown Pink, Green and Peach News

Odd Bags—

Crown Carbon Black Bags

Crown Banana Bags

Crown Notion Bags

Crown Millinery Bags

Crown Garment Bags

Crown Liquor Bags

Crown Barrel Bags

Crown Poultry Bags

Crown Super Bags

Crown Nail Bags

Crown Confectionery Bags

Crown Laundry Bags

Crown Shopping Bags

Specialty Bags—Plain and Printed—

Crown Raisin, Prune, Peach, Fig,  
Potato and Arsenate of Lead Bags

Raisin Tray—

Crown Sunbeam Raisin Tray

Salesbook Manilas—

Crown Salesbook Manila

Sulphite Box Liners—

Crown Box Liners—Pink, Blue and White

Sulphite Wrapping—

Crown Manila

Crown Grocerwrap

Tire Wraps—

Crown Tire Wraps

Waxing Sulphite

Crown Opaque Bread Wrap

Crown Bleached Waxing Sulphite

Waxing Tissue—

Crown Snowtex Waxing Tissue

Crestex Waxing Tissue

Waxed Papers—

Crown Waxfibre

Alpine Waxfold

Crest Waxfibre

Florist Tissue

Waterproof Paper (Laminated)—

Crown Laminated Kraft

**CROWN WILLAMETTE PAPER CO.**

Division Crown Zellerbach Corporation

Los Angeles

## Products

Self-opening Grocery Bags (Otter Kraft)

Fruit Wraps, plain and printed  
Napkins

Embossed Semi-crepe Napkins

Fixture and Special-fold Napkins

Package Napkins—



# ... DESIGNED AND BUILT TO MEET YOUR DEMANDS

Photo of a sextuple-width Silverlink roller chain drive from steam engine counter shaft to chucking spindle of peeler lathe in plant of Harbor Plywood Corp., Hoquiam, Washington. To right is a Silverlink drive to chucking screw for adjusting the two chucks and gripping the two ends of the log firmly.



**YOU** demand, in roller chain, strength, light weight and stamina to withstand shock loads. LINK-BELT'S strict standards of material and production methods coupled with exclusive design features, assure exceptional strength-to-weight ratio, and uniformly high efficiency. The exclusive curled roller cushions any shock and greatly lengthens the life of the chain.

**YOU** require low first cost and low upkeep. Skilled engineering applied to the design and manufacture of Silverlink Roller Chain assures economy in both installation and operation.

**YOU** require positive, efficient power transmission and smooth, flexible, economical operation of conveying equipment . . . LINK-BELT Silverlink ROLLER CHAIN, with its sound basic design, all-steel construction and precision manufacture, meets your needs completely!

**YOU** can profit through the broad experience of LINK-BELT chain engineers—let them help you bring your drives and conveyors to peak efficiency. Write for Roller Chain Engineering Data Book No. 1957.

## LINK-BELT COMPANY, Pacific Division

General Office and Plant: San Francisco (24) 400 Paul Ave.

Factory Branch Offices and Warehouses:

Los Angeles 33, 361 S. Anderson St. — Oakland 7, 526 3rd St. — Seattle 4, 820 First Ave., S.  
Spokane 8, South 151 Lincoln St. — Portland 9, 1637 N. W. 14th Ave.

9435-P





**CROWN ZELLERBACH CORP.  
NATIONAL PAPER PRODUCTS CO.  
DIVISION**

Port Townsend, Wash.  
Products

.016 Kraft Liner Board  
.030 Kraft Liner Board  
.016 to .038 Suit Box Board  
Cement Bag Paper  
Grocery Bag Paper  
Sack Paper  
Kraft Wrapping Paper

**D**

**DIXIE CUP CO.**  
2810 East 12th St.  
Los Angeles 23, Calif.  
Products

Paper Water Cups  
Paper Soda Cups  
Paper Ice Cream and Food Containers

**E**

**EL REY PRODUCTS CO.**  
Los Angeles  
Products

Asphalt Roofing  
Asphalt Slate Surfaced Shingles  
Composition Shingles  
Saturated Lining Felt  
Saturating Felt  
Deadening Felt  
Red and Gray Duplex Sheathing  
Car Linings  
Industrial Floorings  
Dry Felts  
"Metallic" Surfaced Roofing  
Asphalt Saturated Roofing and Shingles

**THE ENVELOPE CORPORATION**  
San Francisco

Products  
Envelopes of every description—Printed and Plain

**ENVELOPE MANUFACTURING CO.**  
Los Angeles

Products  
All types of Envelopes

**EVERETT PULP & PAPER CO.**  
Everett and West Tacoma, Wash.  
Products

Book Papers—  
Nautilus E. F. Book, White, India, Yellow, Blue, Pink, Green and Orange  
Nautilus Super Book, White  
Nautilus Eggshell, White  
Ensign E. F. Book, White  
Everett Soap Wrapper (Alkali Proof), White  
Everett Non-Fading Poster, White, Orange  
Everett White Wove Envelope  
Everett Printing Manila — (Printcraft)  
Everett Blanking Paper—White  
Label and Lithographic Papers  
Litho Poster, White  
Everett M. F. Label, White—  
Everett Super Label, White—B Finish

Offset Papers—  
Seaplane Book (No. 2 Offset) White—Tub Sized

Writing Papers—  
Everett Railroad Writing (O. P. S.) White

Everett Penmanship Writing (M Grade) White

Everett No. 4 Opacity Bond, White  
Canary, Buff, Blue, Pink, Green, Goldenrod

Everett Stadium Bond, White, Canary, Blue, Pink, Green, Goldenrod

Mimeograph Papers—  
Everett Signwell Mimeo (152X Hard Sized) White Wove, Blue, Pink, Canary, Green, Buff, Goldenrod.

Pensign Wove Mimeo—  
White, Blue, Pink, Canary, Green, Buff, Goldenrod

Everett Laid Mimeo (Slack Sized) White, Blue, Pink, Canary, Green, Buff, Goldenrod

Everett Copiwell Papers (Duplicating Papers) 2 grades—"B" White, Canary, Buff, Blue, Salmon, Green, Goldenrod; "L" Grade, White only

Tablets and Stationery—  
Li-Rite Notebooks, Composition Books

Tablets, Pads, Composition Books, Notebooks and Fillers

Opaque School Papers  
Drawing Papers

White, Detail, Gray and Buff  
West Trade Commercial Stationery

West Trade Filing Cards (White)  
West Trade Columnar Pads

Tru Line of Note Books, Composition Books, Filler Books

Gray Bogus Paper  
Federal Reserve Perforated Pads  
Adding Machine and Teletype Paper

**F**

**FERNSTROM PAPER MILLS, INC.**  
Pomona, California  
Products

Citrus Fruit Wraps—Treated and untreated, printed one and two colors of ink, M. F.

Deciduous Wraps (Fruit and Vegetable)—Oiled and unoiled, printed and unprinted, copperized, M. G. and M. F.

Napkins—M. G. white menu  
Department Store Tissue—Flat and quirefolded, M. F.

Laundry Tissue—Flat and quirefolded, M. G.

One-time Carbonizing Tissue  
Bottle Wraps—Printed and unprinted

Waxing and other tissue specialties  
Brands—"Pomona Brand" on foregoing  
"Protecto" Toilet Seat Covers

**FIBREBOARD PRODUCTS INC.**  
Port Angeles, Sumner, Wash.  
Los Angeles, Stockton, Antioch, Calif.  
San Francisco  
Products

Boxboards—  
Boxmakers Grades  
Tagboard

Binders' Board  
Kraft and Jute Liners  
Corrugating, Rag, Straw and Sulphite Board

Paper Cans: Tubes—  
Paper Cans  
Coffee Cans  
Special Cottage Cheese Cans  
Drug Cans  
Double "White-Tite" Cans  
Paper Caps and tin ends of all descriptions  
Mailing Tubes  
Telescope Mailing Tubes  
Screw Top Mailing Tubes  
Kraft Tuck-end Mailing Tubes

Egg Packing—  
6x6 Fillers  
Egg Cartons, 3x4 and 2x6  
"Cushion-Pak" Egg Cartons, 3x4 and 2x6  
Egg Case Flats

Folding Cartons  
Raisin and Dried Fruit Cartons  
Fruit and Vegetable Packing  
Fruit and Berry Baskets  
Tea and Coffee Cartons  
Cereal Cartons  
Display Cartons  
Frozen Food Cartons  
Doughnut Cartons  
Butter and Ice Cream Cartons  
Miscellaneous Folding Cartons  
"Pure-Pak" Milk Containers  
"Tredonia" Bakery Packages  
Bottle Carriers

Corrugated Products—  
Corrugated Rolls  
Photo Mailers  
"Super-Test" Corrugated Shipping Cases  
"Levelbest" Cannerns Cases  
Milk Cases  
Coffee Cases  
Beer Cases  
Fruit and Vegetable Cases  
Wine Cases  
Glass Cases  
Cannery Cases  
Interior Packing Cases  
Miscellaneous Cases  
Cereal Cases  
Butter Cases  
Display Stands  
Frozen Food Cases

Solid Fibre Products—  
"Super-Test" Solid Fibre Shipping Cases  
"Levelbest" Cannerns Cases  
Fruit and Vegetable Cases  
Cannery Cases  
Dried Fruit Cases  
Salmon Cases  
Butter Cases  
Interior Packing Cases  
Miscellaneous Cases  
Cereal Cases  
Soap Cases  
Liquor Cases  
Hexagon Asphalt Drums

Pails—  
Food Pails  
Ice Cream Pails

Commodity Folding Boxes—  
Cake Boxes  
Laundry Boxes  
Cake Circles  
Candy Boxes  
Clothing Boxes  
Hat Boxes  
Millinery Boxes  
Collar Bands



Fruit Packing—  
Berry Baskets  
Liners—Corrugated and Chip  
Pads—Corrugated and Unfaced Indent  
Collars  
Fig Trays  
Fig Partitions  
Fruit Baskets  
Peach Shims  
Orange Shims  
Basket Shims  
Shims—Plain and Combination  
Basket Circles  
Labels  
Diagonal Cell Fillers

# FIELD-ERNST ENVELOPE CO.

San Francisco  
Products

Printed and Plain Business Envelopes  
for mailing and filing

# FIR-TEX INSULATING BOARD CO.

St. Helens, Ore.  
Products

Insulating and Acoustical Board  
Fir-Tex Building Board  
Fir-Tex Ivykote Board  
Fir-Tex Finish Plank  
Fir-Tex Insulating Lath  
Fir-Tex Insulating Tile  
Fir-Tex Refrigeration Insulation  
Blocks  
Fir-Tex Roofing  
Fir-Tex Hardboard  
Firkote Sheathing

# LLOYD A. FRY ROOFING CO.

Compton, Calif.  
Portland, Ore.  
Products

Asphalt Roll Roofing  
Asphalt Slate Surface Shingles  
Slate Roll Roofing  
Rag Felt  
Deadening Felt

# G

# GATES PAPER CO., LTD.

Los Angeles  
Products

Round Fibre Cans  
All types of round Mailing Tubes  
Paper Cores  
Thread Protectors

# GAYLORD CONTAINER CORP.

Oakland  
Products

Corrugated and Solid Fibre Shipping  
Containers

# GRAYS HARBOR PULP & PAPER CO.

Hoquiam, Wash.  
Products

Sulphite Bonds  
Mimeograph  
Envelope  
Writing  
Sulphite Specialties

# GRIFFIN ENVELOPE COMPANY

Manufacturers  
Seattle  
Products

Machine Fold Envelopes  
Hand Fold Envelopes  
Envelopes—Plain  
Envelopes—Printed

# H

# HAWLEY PULP & PAPER CO.

Oregon City  
Products

Newsprint—  
Standard White  
Rolls and Sheets  
Poster Paper  
Drawing Manila—Standard Colors  
Sulphite Wrapping—  
Cheviot Wrapping in Blue and Green  
Cheviot Bristol in Eight Colors  
Cheviot Mimeo Paper in Colors  
Treated Cheviot Innerwrap  
Cheviot Litewrap  
Cheviot Meat Wraps  
Grocers and Butchers Wrapping  
Treated Moistpruf Wrapping  
Sulphite Screenings  
Corrugating Boxboard  
Deciduous and Soft Fruit Wrappers  
Tissue Paper, Unbleached  
Unbleached Toilet Tissues in Rolls  
Towels, Interfolded and Rolls for  
Time-Controlled Towel-Craft Cabinets  
Imitation Greaseproof

# I

# INLAND EMPIRE PAPER CO.

Millwood, Wash.  
Products

Newsprint—  
Rolls and Sheets  
White, cream, colors  
High Grade News—  
Special halftone and magazine  
print  
No. 1 Colored Poster  
Mimeograph News—  
Laid and wove  
White and six colors  
Sub, 16, 20  
Coarse Papers—  
Car Linings  
Screenings  
Ham Wrap  
Sheathing  
Corrugating  
Bond—  
No. 4 Bond in white and colors  
Mimeo Bonds  
Envelope—  
Fibretint Envelope  
White Wove Sulphite Envelope  
Wrapping—  
Fibretint Wrapping  
Empire Butchers Bleached  
Butchers Sulphite  
Grocers Sulphite  
Fibretint Butchers  
Butchers Manila  
Sulphite and Groundwood Specialties—

# J

# JOHNSON ENVELOPE CO.

San Diego, Calif.  
Products

Catalog Envelopes  
Expanding Envelopes  
File Folders  
Filing Envelopes  
Mailing Envelopes  
Merchandise Envelopes  
Photo Mailers  
Tag Envelopes

# JOHNS-MANVILLE SALES CORPORATION

San Francisco

Materials Manufactured at Pacific Coast  
Factories

J-M Asbestos Shingles—  
Dutch Lap, Hexagonal  
No. 35 American Method  
American Colonial (507)  
J-M Asbestos Siding Shingles  
Texture Shingles  
J-M Rock Wool Home Insulation  
Type A—Loose Wool  
J-M Roofing Materials  
Built-Up Asbestos & Rag Felt Roofings  
Asphalt Shingles  
Smooth Surfaced Roll Roofings  
Slate Surfaced Roll Roofings  
Building Papers—Roofing Felts  
Roof Coatings and Putties  
J-M Industrial Building Materials  
J-M Waterproofing Materials  
J-M Celite for Concrete  
J-M Power Products  
Refractory Products  
Miscellaneous Power Products  
Transite Flue Pipe  
Transite Pressure Pipe  
Transite Sewer Pipe  
Asbestos Paper  
85% Magnesia Insulation  
Low Pressure Insulations  
High Pressure Insulations  
Insulating Cements  
Insulating Powders  
Insulating Brick  
Filter Aids & Mineral Fillers

# L

# LAMINATED PAPER BOARDS

San Francisco, Calif.  
Products

Laminated Board and Specialty Paper  
Products  
Specialize in the manufacture of Glas-  
sine Laminated Boards, which are  
greaseproof and moisture resistant

# W. P. LASS CO.

Santa Cruz, Calif.  
Products

Moulded Wood Fibre Chianti Wine  
Baskets  
Ceramic Weld Fibre Gaskets  
Nursery Products—Containers

# LILY-TULIP CUP CORPORATION

Crystal Division  
Los Angeles  
Products

Lily, Tulip and Gem Drinking Cups  
Lily and Gem Soda Cups  
Lily and Gem Carry-Out Cups  
Crystal Drinking Cups  
Crystal Souffle Cups  
Crystal Water Bottle Caps  
Lily and Gem Ice Cream Containers  
Tulip Nestrites  
Tulip Nestrite Tubs  
Tulip Souffles  
Lily, Tulip, and Gem Resale Packages  
Lily Straws





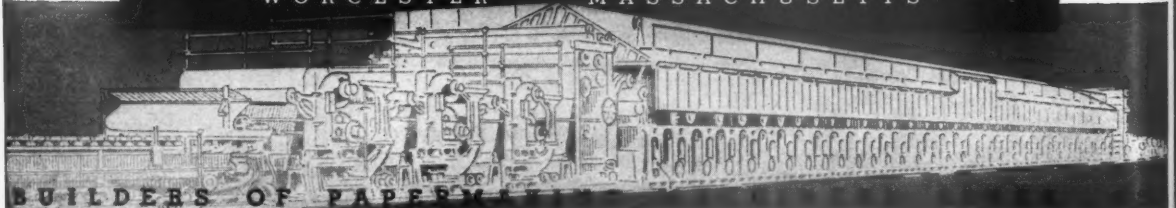
## MORNING IS THE TIME TO FILL THE LAMPS



*N*OW is the time to make your plans if you are going to be well equipped to meet future competition and demands.

Rice Barton can begin work today on designs for your new paper machines or plans for rebuilding your present machines.

*Rice Barton Corporation*  
WORCESTER MASSACHUSETTS



BUILDERS OF PAPER MACHINES

MAY  
LO  
Sulph  
Cyl  
Cyl  
Fou  
Cyl  
Fou  
Duj  
Wa  
Comb  
Tes  
B Flu  
Not  
and E  
Sol  
Kraft  
Pla  
Unpr  
Bleach  
Mach  
W  
Ba  
Gu  
Ti  
Ba  
En  
Four  
W  
Ba  
Bu  
Gu  
Ti  
En  
M  
La  
D  
Ba  
Br  
Ra  
Dup  
Pr  
SH  
Ca  
M  
A  
Kraft  
In  
H  
R  
H  
Cre  
P  
A  
V  
Wa  
D  
L  
P  
V  
Kra  
Gla  
and  
Wa  
Sev  
Sa  
c  
I  
c



**LONGVIEW FIBRE COMPANY**

Longview, Washington  
Products

**Sulphate Board**

Cylinder Test Liner  
Cylinder Non Test Liner  
Fourdrinier Test Liner  
Cylinder Corrugating Board  
Fourdrinier Corrugating Board  
Duplex Kraftlined Asphalted Board  
Waxed Board

**Combined Board**

Test Corrugated Sheets, A Flute and B Flute  
Non Test Corrugated Sheets, A Flute and B Flute  
Solid Fibre Sheets

**Kraft Paper**

Plain and Watermarked, Printed and Unprinted, Natural, Colored, Semi-Bleached and Full Bleached  
Machine Glazed  
Wrapping  
Bag  
Gumming Kraft  
Tire Wrap  
Bakers' Manila  
Envelope

**Fourdrinier Machine Finished**

Wrapping  
Bag  
Butchers  
Gumming Kraft  
Tire Wrap  
Envelope Kraft  
Multiwall Bag Papers  
Laundry Manila  
Drug Bond  
Bakers' Manila  
Brushkraft  
Raisin Tray

**Duplex Asphalted Waterproof Paper**

Products  
Sheathing Paper  
Car Liner  
Multiwall Bag Liner  
Asphalted Specialties

**Paper Towels**

**Kraft, Semi Bleached and Full Bleached**

Interfolded Paper Towels—  
Singlefold  
Doublefold  
Fourfold  
Harcraft Paper Towels  
Roll Paper Towels  
Household Paper Towels

**Creped Paper Products**

Plain Crepe Kraft  
Asphalted Crepe Kraft  
Waxed Crepe Kraft

**Waxed Paper Products**

Delicatessen Paper  
Semi-Bleached  
Full Bleached  
Lettuce Crate Liners  
Powder Box Liners  
Waxed Specialties

**Kraft Bags**

Plain and Watermarked, Machine Glazed and Machine Finished, Printed and Unprinted, Single and Duplex Walls, Plain, Waxed and Asphalted, Sewed Creped, Flat, Self-Opening, Satchel Bottom, Square and Tube Styles  
Grocery  
Notion and Millinery  
Garment

Pants  
Barrel  
Poultry  
Laundry  
Cigarette Carton  
Doughnut  
Liquor  
Shopping  
Carryall  
Beverage  
Bread  
Confectionery  
Pop Corn  
Sugar  
Raisin  
Prune  
Shot  
Opaque Drug  
Paper Milk Bottle  
Dry Ice  
Wet Wash Laundry  
License Plate  
Chocolate  
Can End  
Shoe  
Ice Cream Bar  
Ice Cream Carton  
Briquette  
Potato  
Apple Chop  
Bean  
Insecticide  
Garbage Pail Liner  
Insulation  
Chemical  
Egg Crate Liner  
Poultry Box Liner  
Date  
Beef  
Celery  
Bathing Suit  
Butter Cube

**Shipping Containers**

Victory Shipping Containers  
Test Corrugated Shipping Containers, A Flute and B Flute  
Non Test Corrugated Shipping Containers, A Flute and B Flute  
Interior Packing

**LOS ANGELES PAPER BAG CO.**

Los Angeles  
Products

Paper Bags—  
Grocery  
Millinery & Notion  
Garment  
Shopping  
Sacks  
Liquor  
Sanitary Napkin  
Carton

Bag printing of all kinds.

**M**

**MEKAN-I-KLOTH COMPANY**

Bellingham, Wash.

**Products**

Mekan-i-Kloth—  
Soft Wiping Tissue  
Substitute for Rags  
Grease Absorbent  
Sanitary-Disposable  
All Ways a clean cloth

**N**

**NATIONAL CARD, MAT & BOARD COMPANY**

Los Angeles  
Products

Artists Illustration Board  
Backing Board  
Embossed Boards  
Linen Finish Boards  
Calendar and Photo Mounts  
Card and Mat Board Products  
Coated Board  
Cover Papers  
Display Card-Board and Easels  
Greeting Card Stock  
Illustration Boards and Bristol  
Paper Board Specialties  
Pasted Board  
Picture Backing Board  
Poster Board and Paper  
Box Cover Papers  
Checkbook Cover  
Cover Paper Decorated  
Cover Paper Embossed  
Foil Papers  
Melton Mounts  
Memo Book Cover  
Mount Boards  
Camera Club Mount Boards — Plain and Cut-out

**NORTHWEST ENVELOPE MFG. CO.**

Seattle 4, Wash.  
Products

Envelopes—Plain and Printed

**O**

**OREGON PULP & PAPER CO.**

Salem, Ore.  
Products

White and Colored Bond  
Writings  
Envelope, White and Colored  
Ledger  
Mimeograph, White and Colored  
Glassine, greaseproof, Innerwrap—  
Bleached and unbleached  
Specialties  
Manifold Parchment

**OWENS-ILLINOIS GLASS COMPANY**

San Francisco  
Products

Corrugated Shipping Cases and Corrugated Products

**P**

**PACIFIC COAST ENVELOPE CO. DIVISION**

San Francisco  
Products

Printed and plain envelopes for mailing and filing

**PACIFIC COAST PAPER MILLS OF WASHINGTON, INC.**

Bellingham, Wash.  
Products

Toilet Tissue—  
Bleached and unbleached roll  
Interfolded and Flat Pack  
Mekan-i-kloth





## Put this E-P Man on Your Planning Board... as Paper Transportation Advisor

You know him, of course—your local Elwell-Parker Field Engineer. As your Mill-expansion plans take definite form, it will pay you to know him *better*.

For he is a trained, qualified consultant on low-cost Load Transportation in Pulp and Paper Mills—the vital concern today of your Engineering, Production and Sales Executives alike. The E-P Man can help you to organize Material-Handling Systems to move your loads without waste—in *volume*—with *speed*—with *safety*.

Your local E-P Man is supported by Elwell-Parker's

vast experience covering over 35 years. Elwell-Parker Power Industrial Trucks and Cranes, handling every kind of Paper Mill load, have effected huge savings for companies throughout the Industry. All of the experience gained is available through your Elwell-Parker Field Engineer on the West Coast.

Appoint him your Paper Transportation Advisor. Take him into your confidence as you make vital decisions for your future. He is as close to you as your telephone.

The Elwell-Parker Electric Company, 4231 St. Clair Avenue, Cleveland 14, Ohio.

Seattle: COLBY STEEL & ENGINEERING CO.— 525 Central Building. Telephone: ELIott 5722

San Francisco: IRA G. PERIN — 575 Howard Street. Telephone: GARfield 1827

LOS ANGELES: 1612 Maple Avenue. Telephone: PROspect 5911

# ELWELL-PARKER

## POWER INDUSTRIAL TRUCKS



Napkins—  
White, embossed,  
Flat, quarter-fold  
Dispenserfold  
Sanitary Napkins  
Towels—  
Unbleached Sulphite  
Brands  
M. D. Tissue  
M. D. Sanitary Napkins

**PACIFIC COAST PULP & PAPER CO.**  
Richvale, Calif.

Products

Rice Straw Toweling

**PACIFIC MILLS, LIMITED**  
Ocean Falls, B. C.

Products

Converting Plant, Vancouver, B. C.  
Newsprint  
Kraft Pulp  
Sulphite Pulp  
Kraft paper, M. F. and M. G. plain  
and striped  
Butchers Manila  
Sulphite tissues  
Toilet tissue  
Napkins  
Fruit Wraps  
Towels  
Bread Wraps  
Printed Wrapping  
Plain and printed waxed papers  
Solid Fibre Shipping Cases  
Gummed Kraft and Sulphite Tape—  
Plain and Printed

**PACIFIC NORTHWEST PAPER  
MILLS**  
Division of Columbia River Paper Mills  
Portland

Products

Safety Paper  
Adwrap Decorated Wrappings  
Christmas Specialties

**PACIFIC ROOFING CO.**  
Portland, Oregon

Products

Roll Roofing Felts, Building Papers,  
Roof Coating and Asphalt  
Complete line of Roofings—Shingles,

**PACIFIC PAPERBOARD COMPANY**  
Longview, Wash.

Products

Combination Board  
Plain Chip Board  
Solid News  
News and Manila Lined  
Bleached Manilas  
Mist Gray and Colored Boards  
Container Board  
White Patent Coated Board  
Solid Pulp Board  
Egg Case Filler  
Folding Boxes  
Wax Lined Food Trays  
Sheet Lined Boards

**PACIFIC WAXED PAPER CO**  
Seattle, Wash.

Products

Printed Waxed Paper—  
Bread Wrappers  
Candy Bar Wrappers  
Frozen Fruit & Vegetable Wrappers

Transparent Cake Wrappers  
Adsealite Bands  
Plain Waxed Paper  
Waxed Glassine  
Transparent Cake Wrappers  
Vegetable Crate Liners  
Delicatessen Paper  
Bags—Plain and Printed  
Glassine—Waxed and Unwaxed  
Cellophane  
Window Bags  
Dry Waxed Bags  
Laminated Bags  
Specialty Bags of All Kinds  
Hot Cap Paper  
Pacific Hot Houses  
Tredonia Moistureproof Show Case  
Boxes with Cellophane windows for  
doughnuts, sweet doughs, laye r  
cakes, and bakery products of all  
kinds

**PALMER-BINGHAM ENVELOPE CO.**  
606 E. 12th St.  
Los Angeles 15

Products

Greeting Card Envelopes  
Wedding Announcement Envelopes  
Wallet Flap Envelopes  
Commercial Envelopes

**PAPER SUPPLY CO.**  
Los Angeles

Products

Resale Units of Decorative Wrappings  
"Du Pont Cellophane" in Continu-  
ous Rolls 100-300-500-1000 Foot  
Lengths  
Shelf Paper  
Tissue Paper  
Holly Paper  
"Cellophane" for Deep Freeze Lock-  
er Plant Use  
Distributors:  
Ribbons, Plain Colors or Decorated  
for every use  
Glassips "Cellophane" Soda Straws,  
all colors for hot or cold bev-  
erages

**PARAFFINE COMPANIES, INC.**  
Emeryville, Calif.

Products

Mineral Surfaced Shingle Roll  
Roll Roofings  
Mineral-Surfaced Roofings  
a. P & B  
b. Malthoid  
c. Durable  
Smooth-Surfaced  
a. P & B  
b. Malthoid  
c. Durable  
d. Santo  
e. Paramount  
f. Raintite  
Building Papers and Sheathings  
1. Asphalt Sheathing  
2. Doublekraft  
3. 30-lb. Felt  
4. 15-lb. Felt  
5. Pabcotite  
6. Red Liner  
7. Plasterers' Felt  
8. Deadening Felt  
9. Rosin-Sized Sheathing  
Roof Coatings and Plastics  
1. Raintite Fibre Roof Coating  
2. XXX Coating  
3. Hydrosol, Black  
4. Lap Cement  
5. Roofing Asphalt  
6. Concrete Primer

Car Linings  
Mulch Papers  
Pipe Wrappings  
Fibre Wallboards  
Brands  
Malthoid Durable, P. & B.

**PATERSON PACIFIC PARCHMENT  
COMPANY**  
San Francisco

Products

Patapar Vegetable Parchment—Plain,  
Printed, Waxed and Creped  
Durapak Insoluble Crate Liners and  
Wet Strength Paper—Plain, Printed  
and Rippled  
Parchkin Art Parchment  
Patapake and Patawite Printing Paper  
Patawite Manifold Paper  
Waxed Ice Cream Can Liners  
Waxed Paper

**PERFECTION TWINE CO.**  
Camas, Wash.

Products

Specialty Bags—  
Mattress Bags  
Casket Covers  
Multi-wall Bags  
Specialty Shipping Bags  
Furniture Bags, etc.  
Paper Twines and Cords—  
Seaming Twines  
Fleece Twines  
Handle Cord Twine, etc.  
Molded Fibres  
Tacking Strips  
Lumber Twine  
Pea and Hop Twine

**PIONEER DIVISION THE FLINT-  
KOTE COMPANY**

P. O. Box 2218, Terminal Annex  
Los Angeles, Calif.

Products

Roofing Division

Asphalt Roofing—Dry Felt, all weights,  
12 to 108 lbs.  
Asphalt Mineral Surfaced Shingles  
Asphalt  
Asphalt Emulsion  
Asbestos Shingles and Siding  
Rosin-sized Sheathing  
Corrugated Asbestos  
Blue Plasterboard  
Insulating Papers  
Insulation Board  
Asphalt Paints, Plastic Cement, Flash-  
ing Compound  
Hardboard  
Mulch Papers  
Pipe Wrap Coverings  
Car Lining Papers  
Duplex Kraft Sheathing  
Asphalt Saturated Felt  
Camouflage Paints  
Industrial Coatings

Box Board & Container Division  
Pioneer Super White Patent Coated  
Boxboard  
Pioneer Super Manila  
Pioneer Super Mist Grey and all colors  
Pioneer Super Suit Box Boards  
Pioneer Super Poster Card Board  
Pioneer Black Ebonkote Board  
Pioneer Show Print Board  
Pioneer Solid News Board  
Pioneer Kraft Board Liners  
Pioneer Jute Board Liners  
Pioneer Pasted Chip  
Pioneer Colored Manila Lined Boards  
Pioneer Bleached Manila Lined Boards



# EXPORTERS OF AMERICAN PULP

*To  
Britain  
South America  
and All World Markets*

**LYDDON  
& COMPANY  
(AMERICA) INC.**

51 EAST 42nd STREET  
NEW YORK CITY



Pioneer Book Lined Chipboard  
 Pioneer News Lined Chipboard  
 Pioneer Shirt Boards  
 Pioneer Division Boards  
 Pioneer Fruit Box Liners  
 Pioneer Fruit Box Shims  
 Pioneer Kraft Metal Lath Backing  
 Pioneer Plaster Board Liner (kraft)  
 Pioneer Corrugated Containers  
 Pioneer Corrugated Partitions  
 Pioneer Corrugated Beer Cases  
 Pioneer Corrugated Canners Cases  
 Pioneer Corrugated Shipping Cases  
 Pioneer Corrugated Export Cases  
 Pioneer Corrugated Display Cases  
 Pioneer Corrugated Display Stands  
 Pioneer Single Faced Corrugated Rolls  
 Pioneer Solid Fibre Containers of all kinds

Pioneer Solid Fibre Display Cases and Stands

Pioneer Solid Fibre Partitions

Folding Box Division

Cloak and Suit Cartons  
 Dog Food Cartons  
 Sausage Cartons  
 Breakfast Cartons  
 Cracker Cartons  
 Cookie Cartons

Set-up Box ex

Candy  
 Department Store  
 Hat and Millinery  
 Trousseau  
 Funeral Urn Boxes

#### PIONEER WRAPPER & PRINTING CO.

Los Angeles

Products

Gift-Wrap Holiday Wrapping Papers  
 Printers of Cellophane and other Food Wrappers

Printers, Converters and Distributors of Plain and Fancy Wrapping Papers for the Holiday trade

#### POMONA PAPER PRODUCTS, INC.

Pomona, Calif.

Products

Waxed Paper Rolls in Cutter Edged Boxes  
 Paper Napkins for home use

#### POWELL RIVER CO., LTD.

Powell River, B. C.

Products

Newsprint  
 Unbleached Sulphite Pulp  
 Laminated Papers

#### PUGET SOUND PULP & TIMBER COMPANY

Bellingham, Wash.

Products

Unbleached Sulphite Pulp

## R

#### RAYONIER INCORPORATED

New York and Seattle

Mills at:

Fernandina, Florida  
 Hoquiam, Washington  
 Port Angeles, Washington  
 Shelton, Washington

## Products

Dissolving Pulp for the manufacture of: rayon, staple fibre, cellophane, cellulose acetate, cellulose nitrate, etc.  
 Specialty Pulp for the manufacture of: munitions, plastics, cellulose, impregnated products, vulcanized fibre, welding rods, etc.  
 Bleached Sulphite Pulp for the paper industry

#### ROYAL CONTAINER CO.

Milbrae, Calif.

## Products

Corrugated Shipping Cases  
 Corrugated Rolls  
 Corrugated Specialties  
 Solidfibre Cases  
 Royal Wrap  
 Pasted Board  
 Paper Excelsior  
 Paper Excelsior Packing Pads  
 Fruit Packs and Wraps  
 Embossed Packing  
 Single, Double Wall and Laminated Paper Bags—  
 For Shipping Mattress, Furniture and Caskets  
 Miscellaneous Handmade Bags

## S

#### ST. HELENS PULP & PAPER CO.

St. Helens, Ore.

## Products

Bleached and Unbleached Kraft Paper:  
 Wrapping—both M. F. & M. G.  
 Envelope  
 Gumming  
 Waxing  
 Bag  
 Meat Wraps—Fully bleached, semi-bleached  
 Tire Wraps—Printed or Plain  
 Fruit and Canteloupe Wraps—Printed or Plain  
 Box Liners  
 Toweling  
 Tissue  
 Towels—Interfolded  
 Delicatessen—Waxed, Rolls, Cartons, Interfold  
 Printed Papers of all Kinds—  
 Paper Bags—  
 Grocers  
 Garment  
 Notion  
 Beer

#### ST. REGIS PAPER COMPANY

San Francisco, Calif.

Converting Plants at Seattle, Washington; Emeryville and Los Angeles, California

## Products

Multiwall Paper Valve Bags  
 Multiwall Paper Bags (open-mouth)  
 Cement, Lime and Plaster Bags, etc.  
 Sugar and Flour Bags  
 Chemical Bags  
 Moisture-proof Bags, etc.  
 Valve Bag Filling Machines, Open-Mouth Bag Closing Machines

#### ST. REGIS PAPER CO

Kraft Pulp Division  
 Tacoma, Wash.

## Products

Sulphate Pulp—Bleached and Unbleached

#### SALINAS VALLEY WAX PAPER CO.

Salinas, California

## Products

Waxed Crate Liners  
 Waxed Specialties  
 Asphalt Laminated Kraft  
 Car Liners  
 Building Paper  
 Laminated Specialties

#### SANI-GARD COVER CO.

Los Angeles 31

## Products

Paper Toilet Seat Covers

#### SCHMIDT LITHOGRAPH CO.

San Francisco

## Products

Lithographed Labels  
 Lithographed Cartons  
 Lithographed Posters  
 Lithographed Display Advertising  
 Lithographed Direct Mail Advertising  
 Coated Papers  
 Corrugated Products  
 Seed Bags

#### SEALRIGHT PACIFIC, LTD.

Los Angeles

## Products

Plastic Sealon Closure Caps  
 Regular Disc Milk Bottle Caps  
 Coverite Closure Caps  
 Cylindrical Food Containers  
 Ice Cream Bulk Boxes (2½- and 5-gallon sizes)  
 30-Pound Paperkans for Frozen Goods

#### SHELLMAR PRODUCTS CO.

Pasadena, Calif.

(Main Plant—Mt. Vernon, O.)

## Products

Plain and printed Cellophane Bags  
 Printed Cellophane Rolls  
 Printed Cellophane Sheets  
 Laminated Materials for war industries and civilian applications

#### SHERMAN PAPER PRODUCTS CORP.

Los Angeles

## Products

Baking Cups  
 Fluted Cake Pan Liners  
 Die Cut Liners  
 Labels  
 Printed Gummed Cake Bands  
 Cake Rounds  
 Corrugated Glassine Products  
 Embossed and Printed Glassine Doilies

#### SIDNEY ROOFING & PAPER CO., LTD.

Victoria, B. C.

## Products

Box Board  
 Test Board  
 Felt  
 Building Paper  
 Roofing  
 Bottle Wrap  
 Asphalt Shingles  
 Groundwood Pulp



**SORG PULP CO., LIMITED**  
Port Mellon, B. C.

Products  
Unbleached Sulphate Pulp

**SOUNDVIEW PULP CO.**  
Everett, Wash.

Products  
Bleached Sulphite Pulp

**SOUTHLAND PAPER CONVERTING CO.**

Los Angeles

Products  
Jumbo Furniture and Mattress Shipping Bags  
Sanitary Paper Shower Slippers  
All types Hand-Made Bags  
Fruit Box Guards  
Open Mouth Multi-Wall Paper Bags  
Creped Kraft Meat Bags  
Barrel, Case and Bag Liners  
Continuous Paper Tubing

**SPAULDING PULP & PAPER CO.**  
Newberg, Ore.

Products  
Unbleached Sulphite Pulp

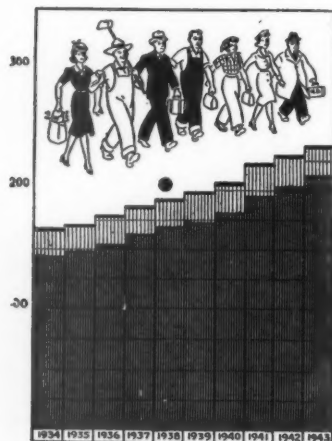
**T**

**TOWLSAVER, INC.**

Los Angeles  
Products

Roll Paper Towels  
Roll Paper Towel Dispensers

**Serving 234,639**  
**Electric Customers**



*Puget Power today is serving more customers at lower rates than ever before . . . with rates around the lowest in the country—less than half the national average.*

**PUGET SOUND  
POWER & LIGHT CO.**

**U**

**U. S. GYPSUM CO.**

Southgate, Calif.  
Products

U. S. G. Asphalt Shingles  
Sil-O-Ett Roll Roofing  
Adamant Slate Roofing  
Imperial Smooth Corrugated Roofing  
U. S. G. Specification Roofing  
U. S. G. Asphalt Saturated Felts  
U. S. G. Building Felt  
U. S. G. Saturated Sheathing  
Kraft Sheathing Paper  
Deadening Felts  
Duo-Color Sheathing Paper  
Blue Plasterboard  
U. S. G. Roof Coatings and Cement  
U. S. G. Asphalt Emulsions  
Chip Paper  
Roofing Felt

**UNITED STATES ENVELOPE CO.**

Los Angeles Division  
Los Angeles

Products  
Commercial Envelopes  
Columbian Clasp Envelopes  
Paper Cups  
Papeteries

**U. S. TISSUE CONVERTING CO.**

Los Angeles

Products  
Tissue Garment Bags  
Glove Paks  
Tie Paks

**UNIVERSAL PAPER GOODS CO.**

Los Angeles

Products  
Special Envelopes  
Filing Containers

**W**

**WASHINGTON PULP & PAPER CORPORATION**

Division of Crown Zellerbach Corp.  
Port Angeles, Wash.

Products  
Newsprint

**WEST COAST PAPER PRODUCTS CO.**

Portland, Oregon

Products  
Bottle Caps, "Milk"

**WEST COAST PAPERBOARD MILLS, INC.**

Los Angeles

Products  
Chipboard

**WESTCO PAPER PRODUCTS CO.**  
Oakland, Calif.

Products  
Coat Hangers (paperboard)  
Skirt Hangers (paperboard)  
Shirt Collar Protectors  
Garment Bags  
Tissue  
Laundry Lists, etc.  
Advertising Hand Bills  
Printing  
Diecutting

**WESTERN CONTAINER COMPANY**

Seattle, Wash.

Portland, Oregon

(California Container Corp.)

Emeryville, Calif.

Los Angeles, Calif.

Products

Corrugated Fibre Containers for All Commodities—

**WESTERN MANUFACTURING & SUPPLY CO.**

Los Angeles

Products

Printed Gummed Sealing Tape  
Special Gummed Tape in rolls  
Gummed Labels, Printed and Perforated, in sheets and rolls  
Everready Sealers-J. C. Sealers  
Automatic and Pull-type Gum Tape Sealers

**WESTERN PAPER CONVERTING COMPANY**

Salem, Ore.

Los Angeles, Calif.

Products

Manufactured at Salem:

Adding Machine Rolls  
Cash Register Rolls  
Glassine and Parchment Bags  
Confectionery Bags  
Printed Greaseproof & Glassine Wrapping Specialties  
Writing Tablets  
Correspondence Stationery  
School and Commercial Stationery  
Composition and Note Books  
Manufactured at Los Angeles:  
Glassine Bags  
Plain and Printed Confectionery Bags

**WESTERN WAXED PAPER CO.**  
Oakland, Los Angeles and Portland

Products

Waxed Paper—Plain and Printed  
Rolls, Sheets, Bags for Wrappers and Liners  
Western Opaque  
Riegelite  
Kleerwrap  
Transo  
Waxfibre  
Adsealite Bands  
Icepak  
Lockerap  
Western Crate Liners  
Vitaguard Bags  
Gummed Tape

**WESTMINSTER PAPER CO., LTD.**

New Westminster, B. C.

Products

Toilet Tissues—  
Machine Creped  
Fruit Wraps—  
Plain, oiled, printed  
Towels and Napkins  
Waxed Paper, plain and printed  
Specialties  
Sanitary Napkins

**WEYERHAEUSER TIMBER CO.**

Longview, Wash.

Everett, Wash.

Products

Bleached Sulphite Pulp  
Unbleached Sulphite Pulp



## Pulp and Paper Important In Invasion

● As the might of the Allies is thrown against Hitler's European Fortress, pulp and paper, and pulpwood cutters and mill employes have a part in driving back the Nazis from their ill-gotten gains.

Photographs of maneuvers in England show cargo planes dropping supplies by parachute on isolated ground troops. These supplies in actual combat will mean the difference between victory and defeat, between life and death.

An examination of these air-borne cargoes reveal the following items made of pulp and paper.

Supply parachutes used to drop packages of food, medical supplies, and ammunition.

Cartons and wrappers in which the food is packed.

Surgical dressings and blood plasma containers to treat the wounded.

Smokeless powder packed in the rifle and machine gun shells.

## Three-Way Use Of Northwest Kraft

● An interesting innovation involving a three-way utilization of Pacific Northwest kraft has been introduced as a result of a contract for butter boxes by the New Zealand government with Canadian and United States paper manufacturers.

Pacific Mills, Ltd., operating mills at Ocean Falls and Vancouver, B. C., is the only Canadian company sharing in this business.

The contract with Pacific Mills is for the supply of 500,000 boxes, and an additional 2,000,000 are being supplied by mills in the United States. Of the Pacific Mills' order 300,000 boxes will be shipped as blank sheets, the balance as regular 50 pound butter boxes, 100 point solid fiber clear kraft.

When the butter has been packed in New Zealand it will be shipped to the United Kingdom and there the kraft board will be remanufactured into paper for other uses.

## Suggests Cigaret Paper Industry For B. C.

● Manufacture of cigaret papers as a by-product of the orchards in British Columbia's Okanogan country has been suggested, but it may not be possible to obtain the necessary machinery before the war ends.

E. S. Atkinson of the Summerland experimental station, said at the annual meeting of the British Columbia Fruit Growers Association that the cigaret papers could be made from the prunings from fruit trees, and that from the trees on 27,000 acres it would be possible to use 20 tons a day, paying the growers \$4 a ton piled on the roadside.

An eastern Canadian firm is reported to be ready to provide approximately 50 per cent of the capital required for construction and operation.

## New Book on Arc Welding

A timely contribution to literature on welding is "Maintenance Arc Welding," published by The James F. Lincoln Arc Welding Foundation, P. O. Box 5728, Cleveland, Ohio. It includes 242 illustrations, bound in semi-flexible simulated leather, 6 x 9 inches, with 233 pages, fully indexed, gold embossed, 50 cents postpaid in U. S.; 75 cents elsewhere.

**ENGINEERING DRAFTSMAN** for development of equipment layouts and industrial plant buildings. Permanent position for right man. Location Pacific Northwest. State salary required and give complete details of experience, education and draft status. Reply to P. O. Box 111, Port Angeles, Washington.

**FOR SALE:** 2 Only Standard 48" Summer Chip Crushers complete with Steel Arbor, Steel Disc. Spout and 30"x 11" Driving Pulley. All in first class operating condition. Reasonable price. Contact Purchasing Department, Weyerhaeuser Timber Company, Longview, Wash.

**MECHANICAL ENGINEER** for industrial plant design. Should have thorough general knowledge of plant design problems and preferably of Pulp & Paper Mills. Should be fully capable of making layouts for equipment, piping, etc., computing requirements and specifying equipment and materials for such layouts and for auxiliary services such as steam, air, liquids or gases. Permanent position for right man. Location Pacific Northwest. State salary required and give complete details of experience, education and draft status. Reply to P. O. Box 111, Port Angeles, Washington.

# FOR SALE

## AVAILABLE FOR PROMPT DELIVERY HIGH GRADE FIRE HOSE

Present government contracts are ahead of schedule. Immediate production of high grade, rubber-lined fire hose is available to industry. Offer good only as long as Army and Navy demands do not take entire plant capacity for fire hose. Suggest you estimate needs quickly; write, wire or phone Pioneer Rubber Mills, 353 Sacramento Street, San Francisco, 11, California, or your local Pioneer distributor for complete details on grade, price and delivery.

**PIONEER RUBBER MILLS**  
353 Sacramento St., San Francisco, 11, Cal.

# PIONEER

*Job  
Tailored*

## INDUSTRIAL HOSE



# HAVE YOU CONSIDERED *BUNKER HILL LEAD*

*for* HANDLING  
CORROSIVES?



*Lines of Bunker Hill Lead Pipe handling acids in a Western refinery.*

Long valued for its corrosion-resistant properties, LEAD now is of increased importance in replacing other materials that are no longer available.

Let us assist you in determining how *Bunker Hill TELLURIUM LEAD* and other alloys can help you in your corrosion problems.

## NORTHWEST LEAD COMPANY

2700—16th Ave. S. W.

**BUNKER HILL  
METALS**

SEATTLE 4, WASH.

"THEY'RE ANALYZED"

## **Chemicals for Victory**

Superior Trona Salt Cake  
Is Made In This Plant



## American Potash & Chemical Corporation

122 East 42nd Street  
New York City

Trona  
California

609 South Grand Avenue  
Los Angeles, California





**SALES  
ENGINEERING  
REPAIRS**



**The INSTRUMENT LABORATORY, Inc.**

LARGEST STOCK OF INDUSTRIAL INSTRUMENTS IN THE WEST.

926-934 Elliott Avenue West

Seattle 99, Washington

Phone: ALder 4940

**Northwest Filter Co.**

122 Elliott Avenue West, SEATTLE  
Telephone Garfield 7700

NORTHWEST FILTER COMPANY, Representing  
The Bristol Company, Industrial Instruments  
Calgon, Inc., Threshold Treatment  
Del Monte Properties Co., Filter Sands  
Goslin-Birmingham Mfg. Co., Inc., Pulp Mill Equipment  
Hagan Corporation, Combustion Control  
Hall Laboratories, Inc., Boiler Water Conditioning  
Process Machinery Company, Rietz Disintegrator

WILLIAM R. GIBSON, Representing  
Infilco, Inc. (International Filter Co.)

**Waterbury Felts**

are made by

**H. Waterbury & Sons Co.  
ORISKANY, N. Y.**

Represented by F. P. Wilder, 2141 N.W. Davis St.  
Portland, Oregon

**MINING WORLD**

With which is combined

**PACIFIC CHEMICAL and  
METALLURGICAL INDUSTRIES**

*Champion of the Mining, Chemical and Metallurgical  
Industries of the West.*

\$3.00 per year in the United States; \$3.50 per year in  
Canada; \$4.00 per year Foreign

71 Columbia St.  
SEATTLE, WASH.  
1220 S. W. Morrison St.  
PORTLAND, ORE.

121 2nd Street  
SAN FRANCISCO, CALIF.  
124 W. Fourth St.  
LOS ANGELES, CALIF.

**ANNOUNCING**

CHANGE OF FIRM NAME

Effective at Once the Name of

**APEX SHEET METAL WORKS**

is being changed to

**FLOHR & CO.  
METAL FABRICATORS**

Capacity No. 26 gauge to 1/4 in. plate, inclusive

Industrial Sheet Metal Work  
Building Sheet Metal Work  
Marine Sheet Metal Work  
Storage Tanks  
Boat Tanks  
Ventilation  
Welding  
Repairs

Owners and Operators:

EDWARD W. FLOHR  
CARLOS FLOHR

Telephone  
PProspect 3131

916 12th Ave., SEATTLE 22, WASH.

**GEORGE F. HARDY**

*Consulting Engineer to the Paper Industry  
Since 1900*

305 Broadway, New York 7, N. Y.

Member—Am. Soc. C. E.—Am. Soc. M. E.—Eng. Inst. Can.  
Consultation—Reports—Valuations—Estimates, Paper and Pulp Mills  
—Hydro-Electric and Steam Power Plants—Plans and Specifications.

**PULP BLEACHING COMPANY**

615 Alaska Street, SEATTLE, WASH.

**EQUIPMENT FOR  
CELLULOSE PURIFICATION  
AND RELATED PROCESSES**